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ABSTRACT

Designed to be a source of information for educators about interactive videodiscs, this handbook presents an overview of the technology and offers additional sources to be consulted for more detailed information. It is noted that, although this second edition of a 1985 publication has gone through extensive changes, clarifications, and corrections, the focus has been kept on the use of technology in education with specific information on appropriate hardware and software to provide a single-source reference for educators and trainers. Information on interactive videodiscs is presented in 10 chapters: (1) Introduction to Videodiscs; (2) Overview of Laserdisc Systems; (3) Selecting a Laser Videodisc Player; (4) Video Playback Units; (5) Videodisc Interface Units; (6) Disc Player Peripherals; (7) Videodisc System Packages; (8) Educational Videodisc Software; (9) Interactive Videodisc Authoring Tools; and (10) Care and Maintenance. Ten appendices provide directories of laserdisc players, television monitors and projectors, laserdisc interfaces, laserdisc peripherals, laserdisc system packages, laserdisc software, videodisc mastering options, and authoring language distributors; service information; and a videodisc bibliography which lists 11 books, 17 periodicals, 6 conference proceedings, 3 special videodisc publications, a directory of 14 organizations that hold conferences and workshops, and an index of 132 manufacturers. (MES)

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The Educators' Handbook To Interactive Videodisc

By Ed Schwartz

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FORWARD TO THE SECOND EDITION

The sales and comments from the first edition of this book have led to the writing of this second edition. The book has gone through extensive changes, clarifications and corrections. This is not to say that the book is free of errors, but it should give the reader a better idea of the videodisc industry as it is today with respect to education and training. The industry has gone through many changes in the past months, and the book will not necessarily reflect all of those changes. Only those changes that effect the use of this medium in education and training have been directly discussed. The focus has been kept on the use of the technology in education with specific information concerning appropriate hardware and software to provide a single-source reference for educators and trainers.

This edition has added several new features that are hoped to be of use to the readers. The opening introduction to capacitive videodiscs has been replaced by a discussion of the new Laserfilm technology by McDonnell Douglas. A section in the Videodisc Software appendix has been added for Vocational Education. Many of these discs may be appropriate in an academic or a vocational setting.

PREFACE

This handbook is designed to be a source of information for educators about interactive videodisc. It does not attempt to be a detailed reference of the technology. It is, rather an overview of the technology, offering additional sources that you can consult for more detailed information. This should help educators find the appropriate equipment and software for any specific application. The book also serves as a starting point for many educators who know nothing of the technology, and assists you in deciding whether the technology is worth pursuing as an educational tool in your specific situation.

The listings of equipment and software contained here are the result of a search of the listed publications, plus the attendance at professional conferences. Although there may be other products available that are not included in this handbook, the listings nonetheless reflect a good portion of the videodisc-related products available today. Because of the fast pace of the industry, many of the prices quoted here may have changed by the time this book is distributed. The prices do, however, still provide a good indication of a general price range of specific items. The products listed are all for use with NTSC (American) standard television equipment unless otherwise specified.

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CHAPTER 1. INTRODUCTION TO VIDEODISCS

Rapidly changing technology confronts an educator with difficult choices in selecting new equipment. Will today's state-of-the-art equipment be tomorrow's Edsel? Obviously, educators must be careful in choosing a particular technology, making certain that it will play an important functional role in the educational system. The Laser Videodisc system is such a technology.

Not all videodisc systems are either as flexible as the laserdisc systems or viable for all of the varied educational settings. The RCA capacitance system, for example, which was removed from the market in the spring of 1984, was not suited to most instructional uses. RCA's decision to withdraw its capacitive system left the laser technology as the only working videodisc format available to American consumers. Recently, McDonnell Douglas introduced the laserfilm system. This system uses a low cost photographic method of information storage and replication while using a laser playback system. The laserfilm system has many of the same characteristics of the laserdisc systems.

LASERFILM (PHOTOGRAPHIC) SYSTEM

The photographic technology has been around for some time now. The early 70's saw at least two photographic systems being developed. The Thompson system sold a small number of units in the late 70's, but the reflective systems received the most attention. McDonnell Douglas took the lead in 1981 to develop the photographic system for their many applications of the medium. They are now marketing the system to primarily maintenance, logistics, and training markets that need to update and change information frequently.

The Laserfilm system consists of the player, a television monitor and the Laserfilm disc. The LSF-4400 player has a full list of features that rival those of the reflective systems. The player can play both directions 2 or 3 times the normal speed or ½, ⅓, ⅛ the normal speed as well as step frame and scan. The stereo audio channels are individually selectable and features a noise reduction system. Other standard features include 2 second worst case access time, digital data retrieval at 2.8 KB per frame, instant jump (under computer control), and still frame audio. The player can have an RS232 serial port or an IEEE 488 port and an optional internal computer that can support a variety of input devices and graphic overlay. Without computer control, an optional remote control unit can perform the necessary control functions.

The Laserfilm videodisc is made of photographic film stored inside of a protective plastic caddy. The disc can store 18 minutes of motion video or 32,400 still frames of information. The still frame audio feature can store 4.77 seconds of audio per frame for over 40 hours of audio available on the disc, or any combination of still frame audio and still frame video.

The largest difference between the reflective and the photographic systems is the mastering and replication. Because the master is made of photographic film, the process of mastering and replication is as simple as developing a photographic negative and then making multiple prints from the negative. Aside from reducing costs, this process can mean easy upgrading of information, quick turnaround, and rapid distribution.

The current costs of the system are $3,600.00 for the basic player without options. The mastering costs from a master videotape are $200 per hour to format the tape, then $500.00 for the master disc, and $10.00 for each duplicate disc. Discs can be replicated at a rate of over 200 to 1000 per hour with an automated system, or about 25 per hour with a man-operated system. All of the formatting, mastering and replication systems are available for purchase to allow any facility to master and replicate their own discs.

LASERDISC (REFLECTIVE) SYSTEMS

The laserdisc system is an optical system reading reflected light from the disc spinning at 1800 revolutions per minute. At this speed, one revolution can playback one frame of video information. This allows the laser to read one revolution over and over, creating a freeze or still frame. A normal 12-inch Interactive (CAV) disc can play up to 30 minutes on one side. This offers 54,000 frames or spaces available for information storage (1,800 × 30 = 54,000). An 8-inch disc can also be used holding 25,200 frames or 14 minutes of information.

With the interactive disc, you can search for and display each of these 54,000 frames in less than three seconds. One disc can store 54,000 pages of information or 54,000 individual pictures and retrieve them at will. With the aid of a small microprocessor (which is

standard on selected players), you can access information on the disc very easily.

The Non-Interactive (CLV) laserdisc continually changes speed to fit more information on the disc, playing up to 60 minutes of video with stereo audio on one disc side. Digital audio tracks are also available on either CAV or CLV discs. These audio tracks can only be read by players specifically designed for that purpose.

The disc itself is made of a metallic substance covered in thick clear plastic so it can be handled without damaging the quality of the recorded information. In fact you can be touch, scratch, drop, and soil it with no ill effects to the recorded signal. Only the laser beam comes in contact with the disc, preventing any wear on the disc when it is played. The disc is not indestructible, but with reasonable care, a laser videodisc will last indefinitely.

In summary, the laserfilm system can perform all of the normal playback functions common to the laserdisc system with about the same flexibility. Both systems have still frame and slow motion capabilities, random access to each individual frame (54,000 with laserdisc and 32,400 with laserfilm), and normal play functions. Both systems are impervious to wear, as they both are read by the laser and nothing touches the discs during playback. The laserdisc audio quality is slightly better than the laserfilm and offers digital audio as an option. Where the life of the laserfilm is not yet known, the inexpensive mastering and replication is a definite advantage.

Figure 1 compares both the laserfilm system and the laserdisc system. It is assumed that these are the top of the line systems with all available options.

Film	Disc	System Feature
Yes	No	Inexpensive mastering and replication
Yes	Yes	Store computer information
Yes	Yes	Interface with home microprocessor
Yes	Yes	Download data from the disc
Yes	Yes	Rapid access to anywhere on disc
Yes	Yes	Random access to frame numbers
Yes	Yes	Freeze frame
No*	Yes	54,000 color frames per side
Yes	Yes	Full set of interactive functions
Yes	Yes	Stereo audio
No	Yes	Digital audio
Yes	Yes	User friendly equipment
Yes	Yes	Low cost of playback equipment
Yes	Yes	Low cost of discs
Yes	Yes	No erasure of information
Yes	Yes	No special storage environment needed
?	Yes	No deterioration of video image
?	Yes	Unlimited disc life

*Laserfilm contains a maximum of 32,400 frames

WHY THE LASERDISC?

It should now be obvious that both laserfilm and laserdisc systems with their complete interactive capabilities make them very desirable for educational applications. The laserfilm is, however, new and untested in the classroom. The laserdisc has been used effectively in the classroom and has a growing list of educational software available to the instructor. In the classroom the possibilities for either system become endless and their unique capabilities cannot be found in any other single media system. Videodiscs and interactive video will be the educator's tool in the classroom of tomorrow—and it is available to the educator today!

CHAPTER 2. OVERVIEW OF LASERDISC SYSTEMS

The delivery systems for the laser videodisc cover a wide range of possibilities. The main difference in the systems is their varying levels of interactivity. The disc systems range from a stand-alone system that only plays back recorded material to highly interactive systems that employ the use of a host computer to run the disc.

One of the features of the laserdisc is that interactive programming can be encoded either on the disc and downloaded to a microprocessor in the player, or on a separate floppy disc driven by a host computer. This addresses the main limitation of the laserdisc system: it is a read-only medium. Read-only means that the end user cannot change the materials on the disc—including the encoding. Just like the information on a phonograph record, the information recorded on the videodisc cannot be changed. When you couple the videodisc with a microcomputer, however, it can become extremely flexible in any setting. You can change and update properly designed programs easily on the host computer. You can superimpose graphics from the computer on top of the videodisc picture allowing modification of the pictures as well.

HARDWARE OVERVIEW

The basic piece of hardware for a laserdisc system is the laserdisc player. The players are categorized by their level of interactivity. The Level One player has limited interactive capabilities. Both Level Two and Level Three players, on the other hand, can be highly interactive. The helium-neon lasers of the early players are now being replaced by the longer lasting solid-state laser diodes.

The other necessary piece of hardware is a television monitor. Although the system will work with any standard black and white or color television, professional television monitors will yield much better picture resolution. High resolution is necessary for classroom use so that students can read screen text clearly. Large classrooms need large image television projectors that offer the best possible clarity and resolution.

The higher the desired interactivity, the greater the need for a microcomputer to be connected to the system. All of the microcomputer's educational characteristics, including complex branching, can be incorporated in the system by means of a videodisc/computer interface. You must take care to ensure that the interface is compatible with all of the desired hardware components and that it is capable of performing all the desired functions. Standard RS232C serial communications ports on both computer and videodisc player can eliminate the need for a separate interface.

Authoring tools (authoring languages and authoring systems) allow anyone, regardless of programming experience, to create lessons with very complex computer routines. These authoring tools are generally programs that allow you to insert information into pre-programmed routines. You then put these routines in any order you choose. The computer does nearly all the work through a series of questions and prompts for the non-programmer.

Standard Videodisc Control Features

Power—This function switch turns the AC current on or off.

Play—Starts the player after the disc has been put into an alternate mode such as pause.

Reverse—Allows the machine to play backward at normal speed.

Stop—Stops the disc on a single frame and waits for a new command.

Pause—This is the same as Stop on most players. Some players will automatically blank the screen in this mode.

Index/Frame Display—This feature enables the user to see which frame of video is being viewed. It is used for finding information in single still frames as well as starting points for sections of video. Frames 1 to 54,000 are available. With CLV discs, this feature will display elapsed time in either minutes or minutes and seconds depending on the player.

Scan Forward—This moves the disc forward at a fast rate of speed and allows for fast identification of the video images.

Scan Reverse—This provides the identical features as Scan Forward, but with the image moving backward.

Fast Forward—This function advances the disc image at three to five times the normal rate of speed.

Fast Reverse—This function moves the disc image backward at three to five times the normal rate of speed.

Still Forward—This will advance the disc forward one frame at a time.

Step Forward—Same as Still Forward.

Still Reverse—This will advance the disc backward one frame at a time.

Step Reverse —Same as Still Reverse.

Multispeed—This feature allows the user select a bi-directional multispeed viewing rate. Speeds include timed still step at 1 frame every 3 seconds or every second, slow speeds at ½x, ¼x, ⅛x and 1/16x normal speeds, a normal 30 frame per second speed and a 3x, or 2x fast speed.

Audio 1—This switch controls the first audio channel which corresponds to the left channel on standard stereo systems. The switch can be toggled on or off.

Audio 2—This switch controls the second audio channel which corresponds to the right channel on standard stereo systems. The switch can be toggled on or off.

INTERACTIVE: LEVEL ONE

A Level One player is the basic videodisc unit on the market. The Level One player usually comes with a small hand controller that lets you operate the player in a remote mode or using the controls on the player itself. Two primary features of the Level One players that are the Search and the Picture Stop features. They allow you to stop the disc at exact frame locations, thus providing natural divisions in the materials presented, or allowing you to address specific still frames.

Most Level One players also feature interface ports to upgrade the system. Random access time varies from one player to the next. Short jumps are usually under one second, but the maximum search times can be up to ten seconds.

Frame/Chapter Search

The Search functions of the Level One player are very valuable and, with proper software, give the unit a high degree of interactivity. Think of the CAV disc as an "electronic textbook" with 54000 pages (frames) of materials. With the Search function, you can easily go to any page (frame) or chapter of information.

You can access any still frame on the disc by using the hand controller. You merely enter the five digit number, from 00001 to 54000 into the small computer in the player and, with the press of the Search key, the frame will appear on the screen—usually in less than fifteen seconds. This function allows you to go anywhere on the disc at any time. If the disc has Chapter Codes, the Search key can also move you to any given chapter of material.

Time Search

Although a few of the early players had the capability to search to time locations on CLV discs, it was very difficult to use effectively. The TIME SEARCH is accomplished in the same manner as a FRAME SEARCH. The player will indicate that it is a CAV disc by displaying minutes and seconds in the screen (00:00) rather than the five digit frame number (00000). Some early players would allow the search to any minute of a CLV disc or 60 possible searchable locations on an hour disc side. The new line of Pioneer players now will search to any second on a CLV disc or 3,600 searchable locations on a CLV disc. This advance means that the vast amount of commercial videodiscs that are now available can be used effectively in the classroom. An opera, a classic film, or possibly a filmed stage production can be studied and viewed in a way that has never been possible and in great detail. The only disadvantage is the inability to use the still frame feature.

Access Time

Access Time is the term used to designate the worst-case search time from any two random points on the disc. If the access time for a player is given as three seconds, for example, the player can Search from frame 1 to frame 54,000 in three seconds or less.

Chapter Codes

The Chapter Code is a feature that many have called Chapter Stop. Chapter Stop is actually incorrect, because the player does not automatically stop at a chapter from the play mode. The correct term is actually Chapter Code. This feature can only work if Chapter Codes have been encoded on the disc. This means that there is a digital code in the vertical or blanking interval of the video signal. With the Chapter Search command, you can then move directly to any encoded chapter by using the hand controller. The player ignores the Chapter Codes when in the normal Play, Forward, or Reverse modes, but in the scan mode, the player will stop within 400 frames of the Chapter Code.

Picture Stops

Picture Stops, like Chapter Codes must also be encoded on the disc, using a digital code in the vertical interval of the video signal. The disc will stop automatically on an encoded Picture Stop frame from the Play or any of the Multi Forward/Reverse modes. Together, the Chapter Stop and Picture Stop will provide the user with a point on the disc that will give an automatic still frame and can be located quickly by a Chapter Search.

Instant Jump Feature

This feature, found on many of the high level players, is available on the Hitachi and Philips Level One players. The Instant Jump allows the disc player to move instantaneously by random access from one

frame to another within a specified tolerance. The Hitachi VIP-9550 player can jump 200 frames forward and 200 frames in reverse in less than 5 milliseconds. This eliminates screen blanking or breakup from one frame to the next.

The other Level One player with this feature is the Philips VP-935 with a 99 frame jump capability in either direction. Some Level Two and Level Three players are also equipped with the Instant Jump feature. Pioneer uses the term Multiple Track Skip to denote Instant Jump. Like the Philips player, the Pioneer models with this feature are capable of jumping multiple tracks, up to 100, in less than 5 milliseconds.

INTERACTIVE: LEVEL TWO

The Level Two videodisc player is designed for industrial and educational applications. These players have built-in microprocessors allowing you to use the player as a stand-alone fully interactive system.

The onboard microprocessor uses at least two forms of memory to store and retrieve information. One form of memory is the Frame Recall storage. A user can store and retrieve a five digit frame number in a file in any order. The important frames needed for any given application can be identified and stored for faster access. The other common form of memory is the Program storage. This allows the user to create computer-assisted instruction (CAI) programs. Such programs can include user input functions, branching, and other normal CAI features as well as timed sequences of Still Frames or real time motion.

These players usually feature an RS232C parallel interface for system upgrading. Random access time is usually under one second for short jumps, and up to five seconds for maximum search distances.

INTERACTIVE: LEVEL THREE

Any disc player interfaced with a microprocessor is a Level Three disc system. The Level One players with computer ports can be interfaced into a Level Three configuration; so can the Level Two players with interface ports. All of the disc players on the market today can be upgraded to a Level Three system with the exception of the Pioneer model LD-838D. Several advantages of the Level Three system are obvious. There is a large increase in the available memory, and the use of high-level math functions allow more sophisticated programming. This technology is the combination of computer-assisted instruction (CAI) and high quality visuals.

There are several players on the market designed to work exclusively with microcomputers. These players do not include controls on the player or have provisions for handsets. They are totally dependent on the host microprocessor for control and allow the user to design more specific functions for the player.

INTERACTIVE: LEVEL FOUR

The definition of this level of interactivity is still being debated in the videodisc field. The Level Three went a step beyond the disc player to the computer for control. Many look at Level Four as the use of overlayed text, graphics, other visual information, and digital data from the external computer. This combination allows all of the computer's power to be used in conjunction with the videodisc player. Visual displays, combining both real video from the disc and text or graphics from the computer, provide an extremely high degree of flexibility for all educational applications. This overlay capability along with the added ability to read digital data from the disc, and input devices including touch screens, joy sticks, light pens, bar code readers, voice activated systems, or bit pads can greatly increase the interactivity of any system and promote a more efficient means of attaining particular objectives.

Whatever the definition of Level Four is, it will be difficult to get a unanimous agreement from the industry. It will probably be adequate to say that the applications of this level are in most cases very unique and require specialized hardware that will make this type of system difficult to obtain with off-the-shelf equipment. The Level Four system is the highest level of interactivity that is currently available on the market. While basically a modified Level Three system, there are no players that are designed solely for this application. Obviously, Level Three players would be the best players suited for this system.

CHAPTER 3. SELECTING A LASER VIDEODISC PLAYER

LEVEL ONE PLAYERS

Level One players are the most economical for many applications. These players allow the full range of interactive features along with the capability to interface with a microprocessor. Too, the access time on these players is generally slower.

Several Level One players are currently on the market. Most of these players have a serial computer interface port that, with the addition of a microprocessor, will allow more sophisticated applications (see Level Three applications). The costs range from $550.00 to $1,690.00.

Pioneer, Hitachi, and Sony all offer Level One players. The Pioneer line offers a wide range of players starting with the low end model LD-838D at $550.00, the LD-V2000 listing at $590.00, model LD-4200 at $995.00 and the consumer combination player, the CLD-909, at $950.00. The Hitachi VIP-9550 lists for $1,350.00 and the Sony LDP-2000/1 is $1,690.00. It should be noted that many of these prices are the suggested list prices, and with some shopping around, many of these players can be found anywhere from 10% to 25% lower than list. Quantity purchases will also permit the vendor to lower the price.

One player that continues to stand out from the others is the combination player on Pioneer's consumer side. The CLD-909 is a multi-purpose player that is capable of playing compact audio discs (CD's) as well as the 12" and 8" videodiscs. This player lists at $1,200.00 and has the same basic video characteristics as the other players. In the digital audio mode it can compare to many of the top CD players. Institutions that are involved in music instruction and home users should find this unit very convenient with the same quality of performance as separate players would provide. This has opened the way for videodiscs that have true digital audio. These discs have both digital and analog audio encoded on them so any videodisc player can play the disc, with the 909 necessary to reproduce the digital track. The digital discs can now be pressed in the CLV or the CAV format for maximum use of the laser technology. Alpine, Luxman, NAD, Sansui and Teac all have similar combination players on the market. These players are actually Pioneer CLD-900 players which were the precursors to the current CLD-909.

Two main issues to be weighed in player selection are cost and function. The higher priced players have several features that might or might not be important to the user. The two main issues would be access time and interface sophistication. The quicker access time of the more expensive players could be a good reason to spend the extra money, but with the access time of the inexpensive players coming down, the real issue seems to be in the degree of sophistication of its interface capabilities, the new CLV time search features of the Pioneer players and the instant jump feature. Many of these features need to be weighed carefully to insure that the right decision is reached. The primary advantage of the Level One players over many of the higher level players is the optional remote handset that allows the player to be used without the computer affording the educator added flexibility in the classroom.

Hitachi VIP9550:
Access Time: 3 seconds Instant Jump 200 frames forward, 200 frames reverse
Price $1,350.00

Philips VP 935/17:
Access Time: 3 seconds, Instant Jump 100 frames forward, 100 frames reverse
Price $1,395.00

Pioneer LV-838D:
Access Time: 8 seconds
Price $550.00

Pioneer CLD-909:
Access Time: 10 seconds
Price $1,200.00

Pioneer LD-V2000:
Access Time: 8 seconds
Price $590.00

Pioneer LD-V4200:
Access Time: 3.5 seconds
Price $995.00

Sony LDP-2000/1:
Access Time: 1.5 seconds
Price $1,690.00

LEVEL TWO PLAYERS

Level Two players are extremely versatile units but are also more expensive. If a stand alone system

is needed with full interactive capabilities, this is the one. The internal memory of the player makes it desirable in many of the more sophisticated applications.

Level Two players offer several options of memory capacity. The onboard microprocessor of the Sony LDP-2000/2 and Pioneer's 6000 line of players, the LD-V6000A, LD-V6010, and the LD-V6200 all have 7K of memory (7156 bytes) and the Philips VP935/ISIA has 8K or ROM and 28K of RAM available. The players have been designed to take advantage of picture stops and chapter search features. The Pioneer players will search to any second on the CLV discs, while the others search only to minutes. All of the players (except the LD-V6200A) have an RS-232C port that allows for upgrading to Level Three as well as a combination of onboard computer routines and host computer commands. The LD-V6200A has an IEEE-488 port for specialized applications. The Sony player is sold for $1,895.00 with a 1.5 second access time, the three Pioneer players are $1,875.00 for the LD-V6200A, $1,800.00 for the LD-V6000A and $1,650.00 for the LD-V6010 all with 2 second access times, and the Philips VP935/ISIA is priced at $1,595.00, with a 3 second access time.

Philips VP 935/ISIA:
Access Time: 3 seconds, 8K ROM, 28K RAM, Instant Jump
Price $1,595.00

Pioneer LD-V6000A:
Access Time: 2 seconds, 7K Memory, Instant Jump
Price $1,800.00

Pioneer LD-V6010A:
Access Time: 2 seconds, 7K Memory, Instant Jump
Price $1,650.00

Pioneer LD-V6200A:
Access Time: 2 Seconds, 7K Memory, Instant Jump
Price $1,875.00

Sony LDP-2000/2:
Access Time: 1.5 seconds, 7K Memory
Price $1,895.00

LEVEL THREE PLAYERS

The Level Three players offer the speed of the Level Two players and an increased set of capabilities. These tend to be the most versatile players available. They demand, however, a greater understanding of computer hardware and programming. They are not always as "user friendly" as other players.

The Level Three players can perform many unique functions that are made possible with a dedicated computer. This player is best suited for individual learning applications. The Philips VP-832/37 player has a three second access time and costs $1,595.00. The Sony LDP-2000 series feature 1.5 second access times for all of the players and starts at $2,305 for the LDP- 2000/3 that has the onboard memory of the 2000/2 but adds a parallel interface and the capability of controlling 16 players. The LDP-2000/4 lists at $3,235.00 and adds Still Frame Audio capabilities in a stand-alone or computer controlled setting. Any Level One or Level Two player may also be used as a Level Three player with the exception of the Pioneer LD-838D.

Philips VP832/37:
Access Time: 3 seconds, Instant Jump
Price $1,595.00

Sony LDP-2000/3:
Access Time: 1.5 seconds, 7K Memory
Price $2,305.00

Sony LDP-2000/4:
Access Time: 1.5 seconds, 7K Memory, Still Frame Audio
Price $3,235.00

Sony LDP-2000/5:
Access Time: 1.5 seconds, 7K Memory, Digital Data access
Price $3,535.00

LEVEL FOUR

Again, Level Four does not have a special player associated with it. As with Level Three systems, any disc player that is interfaced with a computer is considered to be Level Three. The addition of external input devices to the computer, the ability to read digital data, and high resolution color graphics overlays will bring any system to Level Four.

Appendix A lists all of the laserdisc players discussed and their specifications. It should be noted that the majority of the players are front loading machines. The front loading features are useful in situations where space is a consideration.

CHAPTER 4. VIDEO PLAYBACK UNITS

The most misunderstood component of the laserdisc system is the video playback unit. There are two types of units to choose from: a television receiver (the kind of television most people have at home) and a television monitor (a higher quality unit usually found in educational and industrial settings). Although either video unit can reproduce the laserdisc image, the high video quality of the laserdisc often demands greater resolution than most normal home televisions can offer. A major difference between monitors and receivers is in the type of electronic signal that each will accept as an input. There are two types of television signals that can be used to reproduce the videodisc image: an RF signal and a composite video signal. (A third type of signal—RGB—is common in the high-quality reproduction of computer graphics). Each of these signals yields a different picture reproduction quality. RF and composite signals are standard outputs on all videodisc players. RGB output must be created by a computer, normally for computer graphics overlay applications.

TELEVISION RECEIVERS

For situations that do not require the highest quality picture reproduction, a normal color television will give you an adequate result. The quality of the television receiver is limited by the electronic signal that it uses. The RF (radio frequency) signal used by the receiver mixes the audio and video signals into one. The quality of both audio and video signals are compromised by this method. Although the hardware necessary to reproduce this signal is the least expensive option, the quality of the television picture does not adequately reflect the quality of the images that have been recorded on the discs.

TELEVISION MONITORS

The more demanding applications require the use of television monitors. A monitor uses a composite video signal to reproduce an image, and gives the best picture quality in color and clarity. The audio signal in this format is processed separately. Because the composite signals are processed separately, there is a substantial improvement in both the audio and the video as compared to an RF signal. A monitor costs more than a receiver, but the increased quality of the picture is well worth the higher cost. Because the monitor is not equipped to receive commercial television stations by antenna or cable, you need a separate tuner to use it for normal television reception. Many combination units are available that combine the features of receivers and monitors, these cost little more than the monitor alone. If television reception is a requirement, a receiver/monitor might be the answer.

Many television monitors will also accept the RGB (red, green, blue) signal for a high-quality image from the computer. The RGB signal is the fundamental video signal consisting of the primary colors. It produces clearer images and good color from the computer because it receives the least amount of processing. Computers can produce the RGB signal in one of two formats: analog or digital. Unfortunately, there is little standardization in the RGB output from one brand of microcomputer to the next. You must be very careful in the hardware configuration, therefore, to insure the compatibility of equipment. The RGB signal will produce the best results in the use of graphic overlay with the videodisc image, but it also demands the most expensive television monitor.

It is also important to understand that for each type of playback unit, only a limited number of viewers can comfortably see the image on the screen. As a general guideline, you should have no more than twenty people viewing a 19-inch monitor. For the best results, you should select television monitors and receivers with specific applications in mind. A large-screen projector can be the answer to many situations, but one must be certain that the projector will give adequate results with the room configuration and degree of image resolution. Media specialists should be consulted for specific applications.

TELEVISION PROJECTORS

There are two basic types of large screen television projectors from which you can choose. The first type is a self-contained unit that has a projector built into a cabinet. This type of unit is fairly mobile, and has a screen connected to the unit. These units are fairly inexpensive and are often found in stores for home use. They yield acceptable results in the proper environment. Detailed images can often be blurred if not properly maintained.

The second type of system allows the image to be projected onto screens of all sizes (much like a movie projector) through the use of special lenses.

These units generally are permanently mounted in large rooms, including auditoriums. Many of these units can produce images up to 25′ wide. All of these units can project the image from in front of the screen (like a movie projector); many also can reverse the image and project from the rear of the screen. Although these units are highly effective in large-group situations, they can be very difficult and expensive to maintain. For example, the light valve system used in some projectors has a life expectancy of about 1,000 hours. Replacing the light valve costs about $17,000.00 for parts alone, so the use of such a system would have to justify the cost not only of purchase, but repair and maintenance as well.

On a whole, large television monitors not only are more durable and take less maintenance than do the projection units, but they also have a sharper picture. The self contained projectors are fairly inexpensive and offer a minimal amount of maintenance. They also have the larger screen and thus can accommodate more viewers. The projectors with a very large image and rear screen capabilities are expensive and only should be considered when a capable technician is available.

The listings in Appendix B are selected television monitors, self-contained television projectors, and mountable television projectors. This listing in no way represents all of the units in the market. The listed units are known in the field and are readily adapted to videodisc applications. It should be stressed that television specifications do not always give an accurate representation of the video image. Because television image reproduction is very subjective, you should view every television unit prior to purchase.

CHAPTER 5. VIDEODISC INTERFACE UNITS

NON-COMPUTER INTERFACES

Audiotape/videodisc interfaces offer low-cost alternatives to a microprocessor when you need a slide show or other programmable presentation. These interfaces require an audiocassette recorder, with the first track used to carry an audio control signal for the videodisc commands and the second track for narration, music or other audio information. This kind of interface system is versatile, inexpensive, and easy to use. Its limitation, however, is in that full interaction with the user is not possible. To explore fully the many interactive capabilities of the laser videodisc system, you need to use a computer.

Optical Data Corp.—ATVI
Price $125.00

Whitney—A1320
Price $100.00

COMPUTER INTERFACES

For computers to control videodisc players, system hardware and software must be compatible. Sometimes you can directly connect computers and videodisc players with RS232C ports to obtain the desired results. When this is not the case, an interface unit is the necessary hardware to provide this compatibility.

Interface units for videodisc systems provide the link between the player and the computer. The units come in all shapes and sizes. You can install an interface card inside the computer or as a separate external unit. Some interface units do more than others, so you need to know their capabilities.

The simplest interface units control only the videodisc player. The main role of the interface is to facilitate the performance of all desired functions through the host computer. These are the functions that you would normally access through the interactive player controls in the handset.

The next level of interface units will also switch displays onto a single screen, relieving you of the need to watch both the computer screen and videodisc screen at the same time. This can be desirable in many situations, because you can run a small amount of text on the same screen that you use for visuals and thus keep the learner's attention focused on just one screen. Sometimes, however, you may want to keep the images separate in order to run text on one screen at the same time that you run visuals on the other.

A more sophisticated interface group enables you to superimpose the graphics capability of the computer over the video image from the disc. This interface combines the functions of several units into one peripheral. These interfaces, normally expensive, reconstruct the NTSC video signal from the videodisc and the RGB signal from the computer, making them compatible. The added capabilities of the overlay function for appropriate applications are usually well worth the extra expense.

The following interface compatibility chart represents many of the interfaces that are currently available as well as their compatibility with several microcomputers. The chart also notes two of the important features of interfaces: single-screen switching and overlay capabilities. Refer to Appendix C for detailed information on a specific interface unit.

Interface Computer Compatibility Chart

Interface	AP	AT	CM	IB	SO	TI	SS	OL	Price
Allen—UVC	*	*	*	*	*	*	*	I	$1,200.00
Allen—VMI	*						*	O	$ 575.00
Allen—MVP	*	*	*				*		$ 149.95
BCD Associates—VIPc				*			*	O	$1,195.00
COMSELL—VID-GO				*			*		$ 595.00
Health EduTech—IVC-1				*			*		$ 250.00
IEV—IEV-1200/2000	*	*	*	*	*	*	*	I	$2,495.00
IEV—IEV-1200/2010				*			*	I	$2,795.00
IEV—IEV-1210/2010				*			*	I	$2,995.00
IEV—IEV-60	*	*	*	*	*	*	*	I	$3,600.00
Interactive Training Syst				*			*	I	$2,995.00
J.A.M., Inc.—Jam Card				*			*		$ 395.00
Learncom—MIC 2000				*			*	I	$1,950.00
NMG—PC GraphOver				*			*	I	$1,990.00
NMG—GraphOver 9500	*	*	*	*	*	*	*	I	$9,850.00
Online—VDC-100				*			*	O	$ 350.00
Online—GL-512				*			*	I	$1,500.00
Optical Data Corp.—VAI II	*						*		$ 125.00
Poseidon Systems—Apple	*						*		$ 195.00
Poseidon Systems—Commodore			*						$ 129.00
Poseidon Systems—IBM				*			*		$ 375.00
Symtec—DVA Card	*						*		$ 350.00
Symtec—Sony Card	*						*		$ 350.00
Systems Impact—VID-232	*	*	*	*	*	*	*		$ 695.00
Technovision—TSI-101	*	*	*	*	*	*	*		$ 285.00
U.S. Video—Overlay! 110				*			*	I	$ 980.00
VAL—PC Microkey 1125				*			*	I	$1,345.00
VAL—PC Microkey 1175				*			*	I	$1,645.00
VAL—PC Microkey 1225				*			*	I	$1,595.00
VAL—PC Microkey 1275				*			*	I	$1,645.00
VAL—PC Microkey 1300				*			*	I	$1,995.00
Visage—V:Link 1000				*			*	I	$1,150.00
Visage—V:Link 1500				*			*	I	$1,850.00
Visage—V:Link 1550				*			*	I	$2,150.00
Visual Database Systems				*			*		$ 65.00
Whitney—PC 500-A				*					$ 990.00
Whitney—SM 500-A					*				$ 895.00
Whitney—A3001A	*								$ 695.00

AP = Apple
AT = Atari
CM = Commodore
IB = IBM-PC
TI = Texas Instruments
SO = Sony SMC-70
SS = Single Screen
OL = Overlay
(I = Overlay Included)
(O = Option Available

CHAPTER 6. DISC PLAYER PERIPHERALS

Peripherals are add-on devices that offer new dimensions to laserdisc system capabilities. Many of these peripherals such as touch panels, and light pens are standard devices used in Computer Assisted Instruction. These common devices, plus many of the special peripherals for videodisc systems, make the videodisc the most powerful teaching tool available today. Listed below are short descriptions of many of the Peripherals available for use with the videodisc technology.

GRAPHIC OVERLAY

Graphic overlay devices are very important to interactive video lessons. These devices allow the user to superimpose computer generated graphics or text over the television picture from the videodisc. You can display information on the television monitor in a single-screen mode from a computer or the disc.

STILL FRAME AUDIO

The still frame audio adapter is designed to read specially encoded discs. You can play these discs on any laserdisc player, but the special encoding can only be decoded by this device. This digital device compresses analog audio so that it uses only about (1/30) of the space that it would normally occupy on the disc. When you only need still frames visually, but also require either narration or some form of audio, you do not want to waste space by repeating the same video image on the disc. With special encoding, you can compress the audio portion so that 40 seconds of audio and still video are condensed into just a few frames. Compression allows you to store about 1.3 second of audio in the space of a visual frame.

NOISE REDUCTION

The CX noise reduction system is unique to the laserdiscs. It is a built-in feature in many of the players but you can also purchase it separately. This system claims to improve the signal-to-noise ratio of the reproduced discs by as much as 10dB for more than 75dB (1kHz, 100% mod.IHF A). When you connect this device to your system, you only have to turn it on; you do not have any adjustments to worry about.

INPUT DEVICES

Several types of touch screens are on the market allowing the user to input information into the system's computer simply by touching the appropriate spot on the television screen. The Infrared system and the Capacitance Grid system are the most common. While the touch systems on the market are relatively expensive, they provide a real advantage for many situations where the keyset can impede learning.

Graphics tablets, light pens, and joy sticks are inexpensive alternatives to the touch screen. Generally you can purchase these devices as add-ons through computer manufacturers, and then integrate them into any microcomputer system. Like the touch screens, these alternative devices are useful for several instructional applications, especially with lessons for young students whose concentration is easily broken when they cannot find the correct key on the keyboard. Alternative computer inputs get the learner away from the keyboard. Alternate input devices facilitate young students' learning by making it easier for them to enter answers.

VOICE SYNTHESIZERS

Voice synthesizers can offer speech output as a way of communicating with the user. Speech output devices can enhance many applications of videodiscs, especially where written text is a problem.

Information on several peripherals are listed in Appendix D. This list is not exhaustive, but it provides an indication of the prices and capabilities of similar items.

CHAPTER 7. VIDEODISC SYSTEM PACKAGES

As the demand for interactive video technology increases, the need for workable systems also increases. Companys now offer complete system packages already configured to serve particular applications. Many of these are "turnkey" systems—ones where you only need to plug them in and "turn the key on." These system packages make the technology even more accessible to persons intimidated by machines.

Some of the systems are self-contained, and some are complete with large cabinets allowing the system to be moved where you need it. Other systems supply the interface, authoring system, and demonstration materials, allowing you the opportunity to provide other components (computer, television receiver or monitor, and disc player). In this way, you can configure a system using already-existing equipment.

Most systems come with a standard authoring language plus a demonstration package that enables you to familiarize yourself with the system in a short period of time. This package takes you through all the steps you need to know to design the videodisc program.

As each system is dependent upon the host computer, all videodisc system packages are Level Three systems. The large price difference among systems is attributable to several factors. One of these factors is the system's ability to overlay color graphics and text from the computer. A system that can perform this function will cost considerably more than one that cannot. This capability also indicates that the system requires more sophisticated software to operate. The price of the system rises with increased interface capabilities. The price of the computer itself can be an important factor. An IBM-PC, for example, is much more costly than the ATARI-800. The cabinet or enclosure that comes with several systems adds a sizable sum to the total price. So do peripherals that are included in the system.

Several systems require minicomputers or mainframe computers, and allow you to network several terminals on one computer. These systems can be desirable in many situations. The primary manufacturers that support such systems are Control Data Corporation with the PLATO system, Digital Equipment Corporation with the IVIS system, Hazeltine Corporation with the MicroTICCIT system, and WICAT Systems. Each has its own high-level authoring features and ready-to-run software.

Appendix E outlines several currently available videodisc system packages. If you choose one of these systems, you should carefully consider the capabilities of the host microcomputer and all functions you need for specific applications.

CHAPTER 8. EDUCATIONAL VIDEODISC SOFTWARE

Videodiscs are produced in two formats, Constant Linear Velocity (CLV) for limited interactive uses, and Constant Angular Velocity (CAV) for highly interactive instruction. The CLV format allows for Chapter Stops and time search, while the CAV format allows all interactive functions to include still frames of any disc frame and random access to any disc frame.

While total interactivity may be desirable, many educational needs can be filled by the limited functions of the linear play discs. The arts, operas, orchestral works, or ballets can be studied with chapter stops and time search. The increased capabilities of the time search functions of the newer players have given a new perspective to CLV discs allowing you to search to any second on the disc.

In science or mathematics, today's teaching styles demand greater interactivity. As the list of educational videodiscs increases, there will be a marked emphasis on highly interactive programs.

The term "linear disc" refers to a CLV disc with materials that are, from an educational perspective, limited in their interactive possibilities. The discs can be programmed with the newer players and used quite effectively in appropriate situations.

An "interactive disc" is a CAV disc that has materials suitable for programming with an internal or external microprocessor.

A "programmed disc" is an interactive CAV disc that has available computer software or, in some cases, necessary computer software either on diskettes or on the disc itself in the Level Two applications.

Appendix F lists current educational videodiscs on the market. All the discs listed are pressed in the NTSC television standard and are designed to be used in videodisc players sold in America and other countries using the NTSC standard. The hardware and software requirements of each disc are identified whenever possible. The programmed discs are the discs that need special attention from the hardware and computer software perspective. Linear and interactive discs are functional on any system.

Several mail order houses sell commercial laserdiscs at about 10 percent less than retail cost, many of their discs are useful in the educational setting. All of the discs distributed by Laserdisc Corporation of America (LDC) can be purchased through these mail order companies. Instant Replay also carries discs from LDC Japan (noted as imported titles). Be careful when purchasing discs in this manner because many familiar titles are dubbed in Japanese or have Japanese subtitles. If you are ordering by phone, do not hesitate to be specific in stating what you want or do not want. Ken Cranes Video Disc, Instant Replay, Laser World, Starship Industries, U.S. Video Source, and Video Dynamics are a few of the mail order companies around the country. Their addresses and phone numbers are listed in the manufacturers index.

VIDEODISC MASTERING

The other aspect of the videodisc itself is the mastering and pressing of the discs. The most efficient way for one to get started is to share the cost of pressing a disc with others. This option allows you to pay only for the space that is absolutely needed on a disc. Several groups offer this service and usually offer production services to those clients who do not have adequate production facilities. APh Technological Consultants offer a program called Share Disc. They press shared discs on request and offer a variety of production services as well. Comsell has an open disc service that offers a shared disc on request while production services are also available. IICS (International Interactive Communications Society) also has a similar program with production services as an option. In Canada, 3rd Wave Media Consultants will offer many of the same services.

Another inexpensive way to master a disc is to use the services of a company such as Crawford Communications, Inc. in Georgia, or Spectra Image in California. These companies will press a CAV disc for $300.00 in 24 hours. The video and audio quality of these quick discs may not be as good as that of discs pressed in the normal fashion. They are meant to be low-cost check discs that can be used to check frame numbers and test interactive programming.

Laser Video has the same type of limited-quantity fast-turnaround service, but they give you the quality and full 30-minute storage capacity available from the larger mastering facilities. Laser Video will provide a 30 minute CAV disc for $2,200.00 and or 60 minute CLV disc for $2,900.00 in 24 hours with a high degree of quality control. A six day turnaround costs $1,200 for the CAV and $1,900.00 for the CLV. The eight-inch prices are $1,600.00 for a CAV and $1,800.00 for CLV with a 24 hour turnaround, and $600.00 CAV and $800.00 with a six day turnaround.

The next group of companies produce quality controlled videodisc masters and can replicate them

in large quantities. Each company has special arrangements for digital dumps, special encoding, 24-hour turnaround, and packaging. This book does not discuss the production of videodiscs, but Appendix G is offered as a resource for those interested in the possibility of producing their own materials. It lists the names and addresses of the primary companies involved in the technology as well as comparison charts outlining set-up and per-disc costs of each volume mastering facility in the United States.

CHAPTER 9. INTERACTIVE VIDEODISC AUTHORING TOOLS

There are two tools available to the instructor to create interactive videodisc lessons: authoring systems and authoring languages. Each system or language is designed to be compatible with one of the major computers on the market. It is crucial in the selection of an authoring tool that the desired system or language be correct for the microcomputer that will be used. Specific options such as high resolution graphics and graphic overlay are supported by many of the available tools, but it should be emphasized that the purchase of a specific graphics or graphics overlay board is almost always necessary.

Authoring systems are computer programs allowing an individual, without a computer background to design interactive lessons on a microcomputer. Each of the systems on the market varies in its ability to perform the more complex routines including the control of videodisc players. The less expensive systems tend to be very limited in their ability to handle any graphics, graphics overlay, peripheral device inputs, answer judging and record keeping. The more expensive systems can usually handle these functions easily. The most common systems are menu driven. In other words, a series of menus take the user through the programming possibilities and allow the user to make decisions based on available options. The menu driven systems are easy to use, and usually take no understanding of computer programming. All of the actual computer code is generated by the authoring system based on the user responses to the menu questions.

The authoring language is a computer language that requires knowledge of the language and the programming techniques to implement the desired teaching strategies. Authoring languages generally offer more versatile options than authoring systems as they are not locked into a set pattern of choices, but the languages give up the ease of use that the systems offer. The primary functions of these languages are not difficult to learn, but it does take a good deal of experience to understand and program the more complex routines. The knowledge and creativity of the programmer is normally the most limiting factor of any language. Examples of an authoring language would be BASIC, Pascal or C.

Appendix H lists several authoring tools that are designed for interactive videodisc applications. Each of the listed tools offers a slightly different approach to the development of an interactive lesson, but all should give the same results for a basic lesson with multiple choice or true/false branching. Normally, the higher the cost of the tool, the more options and flexibility. Again, these options often might require the purchase of a separate hardware unit.

CHAPTER 10. CARE AND MAINTENANCE

VIDEODISC CARE

Videodiscs themselves are quite durable. They are, however, not indestructible! The discs, when abused, can crack or warp. Minor scratches on the disc surface do not normally affect the playback. Large scratches or foreign substances on the disc will affect the playback. The only way to insure that the discs will always play correctly is to handle them with care.

The easiest way to eliminate possible problems is to handle the discs as if they were phonograph records. Store the discs standing on end on a shelf away from the sun and heat sources. Do not place the discs on top of the player, amplifier or other warm equipment. Handle the discs only by their edges and center.

Although the plastic coating on the disc protects it from damage, discs will not play correctly if they are warped, dirty or scratched, and they may damage the player. The discs should be wiped clean with a soft cloth before each use, and should be at room temperature before they are played. Moisture may condense on the surface of the disc and effect it's performance.

Remove the tight cellophane wrap that seals most newly purchased disc jackets as soon as possible. This cellophane can tighten around the jacket and may warp the disc if stored for a long time.

Testing for a warped disc is easy. Place the disc on a flat surface and check to see if the disc is touching the surface on all sides. If a gap exists under any part of the disc, there is a potential problem. If the gap exceeds the thickness of a nickel, you need to flatten the disc. You can do this by placing the disc between two flat surfaces with evenly distributed weights on top. A day or two in this improvised press should put the disc in a playable condition.

SYSTEM ENVIRONMENT

The environment necessary to support the system is fairly reasonable. The room temperature should be between 45 and 95 degrees fahrenheit (5 to 30 degrees centigrade), with humidity ranging between 0 and 90 percent. The optimal conditions, of course, lies somewhere in between. It is wise to let equipment warm up for a minute or two if it is moved from a cold room to a warm room. This will allow any moisture that has collected to evaporate. Although there probably is little chance of damage, the more care you give a system, the longer it will last. In equipment placement, be certain that the equipment has adequate ventilation. Heat will build up very fast in enclosed areas such as cabinets, and this can result in serious damage.

HARDWARE MAINTENANCE

Repair and maintenance should be performed by a knowledgeable person. You should allow for maintenance and repair of equipment in your budget before problems arise. Most of the problems you are likely to encounter will be minor, but even minor problems can make a system inoperable. Many companies offer service contracts for selected hardware. You also might arrange for service from the dealer that supplied the hardware. Although it is unlikely that major repairs will be needed for the hardware listed, you should consider some type of service contract. If you work in a large institution, you might already have a contract that covers all video equipment or computer equipment, or you may be able to add more items to an existing contract.

One company that provides this service is the Warrantech Corporation. This firm will provide extended warranty coverage on most videodisc related-items. Based in New York, Warrantech has a chain of authorized service centers in all 50 states. The extended warranty begins upon the expiration of the original manufacturer's warranty on labor or parts, whichever occurs first. The coverage can extend up to five years from the original purchase date of the item. In Service, Inc. offers fast and reliable service of videodisc players. Based outside of Chicago, In Service boasts a 5-day turnaround of videodisc players with extended warranties available. Appendix I lists their addresses and the current costs for some of the items covered.

APPENDIX A. DIRECTORY OF LASERDISC PLAYERS

CURRENT LEVEL 1 PLAYERS

Hitachi
VIP 9550 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	
Impedance:	75 ohms

Audio

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	
S/N Ratio:	More than 70 dB(CX on, 1KHz 100% mod.)
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 1

Memory:	None
Interface:	RS-232C, Serial 9,600 baud
Access Time:	3 seconds, Instant Jump 200 Fwd, 200 Rev
CLV Search:	

Others

Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/60Hz
Power Consum.:	38 watts (UL)
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	435x115x415 mm (17⅛x4⅝x16⅜ in)
Weight:	12 kg (26 lbs)
Price:	$1,350.00

Philips
VP 935/17 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	Optional RF-modulator
Impedance:	75 ohms

Audio

Output Level:	650 mVrms (1kHz 100% mod.)
Harmonic Dist.:	1% (1kHz 100% mod.)
S/N Ratio:	55 dB
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Optional

Interactive Capabilities—Level 1

Memory:	None
Interface:	RS232C/110-9600 baud selectable Optional IEEE 488 parallel control bus
Access Time:	3 seconds, Instant Jump 99 Fwd., 99 Rev.
CLV Search:	

Others

Laser:	
Power:	AC 120V/60Hz, 220-240V/ 50Hz
Power Consum.:	55 watts
Temp. Range:	
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	535x133x478 mm (21x5.2x18.8 in)
Weight:	12.5 kg (27.6 lbs)
Price:	$1,395.00

Pioneer Video
LD-838D VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio (analog)

Output Level:	
Harmonic Dist.:	
Freq. Resp.:	
CX Encoding:	Yes

Audio (digital)

Output Level:	
Harmonic Dist.:	
S/N Ratio:	98 dB
Freq. Resp.:	4Hz-20KHz

Interactive Capabilities—Level 1

Memory:	None
Interface:	None
Access Time:	8 second maximum search time
CLV Search:	Minutes/Seconds

Others

Laser:	7,800 Angstrom, laserdiode
Power:	AC 120V/60Hz
Power Consum.:	38 watts (UL)
Temp. Range:	+5 deg. to +30 deg. C, 45 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	16½x4x15⅞ in
Weight:	8.6 kg (19 lb)
Price:	$550.00

Pioneer Video
LD-838D VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio (Analog)

Output Level:	650 mVrms nominal
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod)
S/N Ratio:	More than 70 dB (CX on)
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Yes

Audio (Digital)

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	Less than 0.003%
S/N Ratio:	98 dB
Freq. Resp.:	4Hz-20kHz

Interactive Capabilities—Level 1

Memory:	None
Interface:	None
Access Time:	8 second maximum search time
CLV Search:	Minute/Second

Others

Laser:	7,800 Angstrom Solid State
Power:	AC 120V/60Hz
Power Consum.:	38 watts (UL)
Temp. Range:	+5 deg. to +30 deg. C, 45 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	16½x4x15⅞
Weight:	19 lbs (8.6 kg)
Price:	$550.00

Pioneer Video
LD-V2000 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 45 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	More than 75 dB(CX on)
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 1

Memory:	None
Interface:	8 Pin DIN connector
Access Time:	8 seconds maximum search time
CLV Search:	Minutes/Seconds

Others

Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/60Hz
Power Consum.:	
Temp. Range:	+5 deg. to +30 deg. C, 45 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	16.5x4x16 in
Weight:	20 lbs
Price:	$590.00

Pioneer Video
CLD-909 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio (Analog)

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	76 dB
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Audio (Digital)

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	Less than 0.003%
S/N Ratio:	96 dB
Freq. Resp.:	5Hz-20kHz

Interactive Capabilities—Level 1

Memory:	None
Interface:	Serial 24 pin & 8 pin DIN connector
Access Time:	10 second maximum search time
CLV Search:	Minute/Seconds

Others

Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/50/60Hz
Power Consum.:	45 watts
Temp. Range:	+5 deg. to +30 deg. C, 45 deg. to 95 deg. F
Disc Format:	CAV/CLV/CD
Dim. (WxHxD):	420x168x447 mm(16 9/16x 6 5/8x 17 5/8 in)
Weight:	15.6 kg (34 lbs 7 oz)
Price:	$1,200.00

Pioneer Video
LD-V4200 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	650 mVrms nominal (1kHz 100% mod. 50K ohms terminated
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	More than 75 dB(CX on)
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 1

Memory:	None
Interface:	RS232 1200/4800 baud
Access Time:	3.5 seconds maximum search time
CLV Search:	Minutes/Seconds

Others

Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/60Hz
Power Consum.:	
Temp. Range:	+5 deg. to +30 deg. C, 45 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	
Weight:	20 lbs
Price:	$995.00

Sony Video
LDP-2000/1 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	Less than 2K ohms (100% mod., 47K ohm load) unbalanced
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	55 dB (67 dB CX on)
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 1

Memory:	None
Interface:	RS-232C, 1200, 2400, 4800, & 9600 baud
Access Time:	1.5 seconds maximum search time
CLV Search:	Minutes

Others

Laser:	6328 angstrom, He-Ne 1mW
Power:	AC 120V/60Hz
Power Consum.:	75 watts
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F

Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	424x132x488 mm (16¾x5¼x19¼)
Weight:	13.4 kg (29 lbs, 9 oz)
Price:	$1,690.00

CURRENT LEVEL 2 PLAYERS

Philips
VP 935/ISIA VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	Optional RF-modulator
Impedance:	75 ohms

Audio

Output Level:	650 mVrms (1kHz 100% mod.)
Harmonic Dist.:	1% (1kHz 100% mod.)
S/N Ratio:	55 dB
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Optional

Interactive Capabilities—Level 2

Memory:	8K ROM, 28K RAM
Interface:	RS232C/110-9600 baud selectable, Optional IEEE 488 parallel control bus
Access Time:	3 seconds, Instant Jump 99 Fwd., 99 Rev.
CLV Search:	

Others

Laser:	
Power:	AC 120V/60Hz, 220-240V/50Hz
Power Consum.:	55 watts
Temp. Range:	
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	535x133x478 mm (21x5.2x18.8 in)
Weight:	12.5 kg (27.6 lbs)
Price:	$1,595.00

Pioneer Video
LD-V6000A VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	3.3K ohms
Harmonic Dist.:	Less than 0.5% (1kHz 75% mod.)
S/N Ratio:	67dB with CX, 55 dB without CX
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 2

Memory:	7K byte programmable microprocessor
Interface:	RS-232C built-in interface 300-9600 baud
Access Time:	2 seconds maximum search time, Instant Jump, 100 forward, 100 reverse
CLV Search:	Minutes/Seconds

Others

Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/50/60Hz
Power Consum.:	40 watts (UL)
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	16 17/32x5 15/16x16 5/16
Weight:	30.9 lbs
Price:	$1,800.00

Pioneer Video
LD-V6010A VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	3.3K ohms
Harmonic Dist.:	Less than 0.5% (1kHz 75% mod)
S/N Ratio:	67 dB with CX, 55 dB without CX
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 2

Memory:	7K byte programmable microprocessor

Interface:	RS-232C built-in interface 300-9600 baud
Access Time:	2 seconds maximum search time, Instant Jump, 100 forward, 100 reverse
CLV Search:	Minutes/Seconds
Others	
Laser:	7,800 Angstrom, laserdiode, 3 mW
Power:	AC 120V/50/60Hz
Power Consum.:	40 watts (UL)
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV / CLV, 12" & 8"
Dim. (WxHxD):	$16\frac{17}{32}$x$5\frac{15}{16}$x$16\frac{5}{16}$
Weight:	30.9 lbs
Price:	$1,650.00

Pioneer Video
LD-V6200A VIDEODISC PLAYER

Video	
Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced
Audio	
Output Level:	3.3K ohms
Harmonic Dist.:	Less than 0.5% (1kHz 75% mod.)
S/N Ratio:	67 dB with CX, 55 dB without CX
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes
Interactive Capabilities—Level 2	
Memory:	7K byte programmable microprocessor
Interface:	IEEE-488
Access Time:	2 seconds maximum search time, Instant Jump, 100 forward, 100 reverse
CLV Search:	Minutes/Seconds
Others	
Laser:	7,800 Angstrom, laserdiode, 3mW
Power:	AC 120V/50/60Hz
Power Consum.:	40 watts (UL)
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	$16\frac{17}{32}$x$5\frac{15}{16}$x$16\frac{5}{16}$
Weight:	30.9 lbs
Price:	$1,875.00

Sony Video
LDP-2000/2 VIDEODISC PLAYER

Video	
Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced
Audio	
Output Level:	Less than 2K ohms (100% mod., 47K ohm load) unbalanced
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	55 dB (67 dB CX on)
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes
Interactive Capabilities—Level 2	
Memory:	7K
Interface:	RS-232C, 1200, 2400, 4800, & 9600 baud
Access Time:	1.5 seconds maximum search time
CLV Search:	Minutes
Others	
Laser:	6328 angstrom, He-Ne 1 mW
Power:	AC 120V/60Hz
Power Consum.:	75 watts
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	424x132x488 mm ($16\frac{3}{4}$x$5\frac{1}{4}$x$19\frac{1}{4}$)
Weight:	13.7 kg (30 lbs, 4 oz)
Price:	$1,895.00

CURRENT LEVEL 3 PLAYERS

Philips
VP 935/37 VIDEODISC PLAYER

Video	
Video Response:	NTSC specification
S/N Ratio:	More than 42 dB
VHF Output:	Optional RF-modulator
Impedance:	75 ohms

Audio

Output Level:	650 mVrms (1kHz 100% mod.)
Harmonic Dist.:	1% (1kHz 100% mod.)
S/N Ratio:	55 dB
Freq. Resp.:	40Hz-20kHz
CX Encoding:	Optional

Interactive Capabilities—Level 3

Memory:	None
Interface:	RS232C/110-9600 baud selectable IEEE-488 parallel control bus
Access Time:	3 seconds, Instant Jump 99 Fwd., 99 Rev.
CLV Search:	

Others

Laser:	
Power:	AC 120V/60Hz, 220-240V/50Hz
Power Consum.:	55 watts
Temp. Range:	
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	535x133x478 mm (21x5.2x18.8 in)
Weight:	12.5 kg (27.6 lbs)
Price:	$1,595.00

Sony Video
LDP-2000/3 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	Less than 2K ohms (100% mod., 47K ohm load) unbalanced
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	55 dB (67dB CX on)
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 2/3

Memory:	7K
Interface:	RS-232C, 1200, 2400, 4800, & 9600 baud IEEE-488
Access Time:	1.5 seconds maximum search time
CLV Search:	Minutes

Others

Laser:	6328 angstrom, He-Ne 1mW
Power:	AC 120V/60Hz
Power Consum.:	75 watts
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	424x132x488 mm (16¾x5¼x19¼)
Weight:	13.9 kg (30 lbs, 8 oz)
Price:	$2,305.00

Sony Video
LDP-2000/4 VIDEODISC PLAYER

Video

Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced

Audio

Output Level:	Less than 2K ohms (100% mod., 47K ohm load) unbalanced
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	55 dB (67 dB CX on)
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes

Interactive Capabilities—Level 2/3

Memory:	7K
Interface:	RS-232C, 1200, 2400, 4800, & 9600 baud IEEE-488, Still Frame Audio
Access Time:	1.5 seconds maximum search time
CLV Search:	Minutes

Others

Laser:	6328 angstrom, He-Ne 1mW
Power:	AC 120V/60Hz
Power Consum.:	75 watts
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	424x132x488 mm (16¾x5¼x19¼)
Weight:	14.1 kg (31 lbs, 14 oz)
Price:	$3,235.00

Sony Video
LDP-2000/5 VIDEODISC PLAYER

Video	
Video Response:	NTSC specification
S/N Ratio:	More than 40 dB
VHF Output:	Channel 3 or 4 (switchable)
Impedance:	75 ohms unbalanced
Audio	
Output Level:	Less than 2K ohms (100% mod., 47K ohm load) unbalanced
Harmonic Dist.:	Less than 0.3% (1kHz 75% mod.)
S/N Ratio:	55 dB (67 dB CX on)
Freq. Resp.:	20Hz-20kHz
CX Encoding:	Yes
Interactive Capabilities—Level 2/3	
Memory:	7K
Interface:	RS-232C, 1200, 2400, 4800, & 9600 baud IEEE-488, Still Frame Audio, Digital Data
Access Time:	1.5 seconds maximum search time
CLV Search:	Minutes
Others	
Laser:	6328 angstrom, He-Ne 1mW
Power:	AC 120V/60Hz
Power Consum.:	75 watts
Temp. Range:	+5 deg. to +35 deg. C, 41 deg. to 95 deg. F
Disc Format:	CAV/CLV, 12" & 8"
Dim. (WxHxD):	424x132x488 mm (16¾x5¼x19¼)
Weight:	14.6 kg (32 lbs, 2 oz)
Price:	$3,535.00

APPENDIX B. DIRECTORY OF TELEVISION MONITORS AND PROJECTORS

TELEVISION MONITORS

Mitsubishi
CS-2061R 20″ Television Receiver/Monitor

Video

Picture Size:	20″ diagonal
Picture Tube:	
Video Input:	RGB, NTSC-composite video, or RF
H. Resolution:	320 lines

Audio

Audio Input:	Stereo line in
Audio Output:	Stereo line out (built-in speakers)

Other Features

Power:	120VAC/60Hz
Consumption:	
Dim. (WxHxD):	20½x19x19¼ in
Weight:	
Price:	$820.00

NEC
CT-2060 20″ Television Monitor

Video

Picture Size:	20″ diagonal
Picture Tube:	Square-cornered picture tube
Video Input:	NTSC-composite video
H. Resolution:	380 lines

Audio

Audio Input:	Line in
Audio Output:	

Other Features

Power:	120VAC/60Hz
Consumption:	180 watts
Dim. (WxHxD):	23⅞x17¾x18⅜
Weight:	48.5 lbs
Price:	$600.00

NEC
DT-2680 26″ Digital Television Monitor

Video

Picture Size:	26″ diagonal
Picture Tube:	Square-cornered picture tube
Video Input:	NTSC-composite video
H. Resolution:	500 lines

Audio

Audio Input:	Line level
Audio Output:	

Other Features

Power:	120VAC/60Hz
Consumption:	165 watts
Dim. (WxHxD):	26x19½x22⅝ in
Weight:	108 lbs
Price:	$1,895.00

Pioneer
SD-25A 25″ Television Monitor

Video

Picture Size:	25″ diagonal
Picture Tube:	0.75mm pitch
Video Input:	NTSC-composite video, (RGB optional)
H. Resolution:	400 lines horizontal

Audio

Audio Input:	Line level
Audio Output:	10 watts per channel

Other Features

Power:	120VAC/60Hz
Consumption:	200 watts
Dim. (WxHxD):	24¹⁵⁄₁₆x22¹⁄₁₆x19⁹⁄₁₆ in (634x560x497 mm)
Weight:	104 lb, 1 oz
Price:	$1,300.00 ($70.00 for RGB)

Sony
PVM-1271Q 12″ Television Monitor

Video

Picture Size:	12″ diagonal
Picture Tube:	Trinitron, 0.25mm RGB phosphor-stripe pitch
Video Input:	NTSC-composite video, RGB, PAL, SECAM
H. Resolution:	500 lines (video), 600 lines (RGB)

Audio

Audio Input:	Line level
Audio Output:	

Other Features

Power:	120VAC/60Hz
Consumption:	
Dim. (WxHxD):	13½x13 13/16x15 5/16 in
Weight:	31.7 lbs
Price:	$930.00

Sony
PVM-1910Q 19" Television Monitor

Video

Picture Size:	19" diagonal
Picture Tube:	Trinitron
Video Input:	NTSC-composite video, analog/digital RGB
H. Resolution:	

Audio

Audio Input:	
Audio Output:	

Other Features

Power:	120VAC/60Hz
Consumption:	
Dim. (WxHxD):	19¼x18¼x21¼ in
Weight:	63 lbs 15 oz
Price:	$820.00

SELF-CONTAINED TELEVISION PROJECTORS

Hitachi
CT5011 50" Projection Television

Video

Picture Size:	50" diagonal
Picture Type:	Front projection console
Video Input:	RF, NTSC-composite video
Brightness:	120 foot lamberts

Audio

Audio Input:	Line level
Audio Output:	20 watts stereo, built-in speakers

Other Features

Power:	120VAC/60Hz
Consumption:	121 watts
Dim. (WxHxD):	31¼x62½x42¾ in (open)
Weight:	
Price:	$1,500.00

NEC
PJ-4000EN 40" Projection Television

Video

Picture Size:	40" diagonal
Picture Type:	Rear projection console, 5" refractive CRT
Video Input:	VHF, 75 ohm unbal., NTSC-composite video
Brightness:	150 foot lamberts at center

Audio

Audio Input:	Line level
Audio Output:	20 watts, built-in speakers

Other Features

Power:	120VAC/60Hz
Consumption:	
Dim. (WxHxD):	940x1240x560 mm (37x48 13/16x22 in)
Weight:	
Price:	$2,800.00

Sony
KPR-4620 46" Projection Television

Video

Picture Size:	46" diagonal
Picture Type:	Rear projection console
Video Input:	RF, NTSC-composite, RGB (analog or digital)
Brightness:	220 ft lamberts

Audio

Audio Input:	Line level
Audio Output:	

Other Features

Power:	120VAC/60Hz
Consumption:	186 Watts
Dim. (WxHxD):	44¼x48½x25⅜ in
Weight:	169 lbs, 5 oz
Price:	$3,395.00

MOUNTABLE TELEVISION PROJECTORS

Electrohome (U.S.A.) Limited
ECP-2000 Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front or Rear Screen
Picture Tube:	
Projection Lens:	Single lens, dichroic design
Picture Size:	5 ft. to 7 ft. diagonal
Picture Brightness:	130 foot lamberts (6-ft image 10 gain)
Throwing Distance:	87.5 inches

General

Video Format:	NTSC
RGB Resolution:	
Video Resolution:	600 lines
Horizontal Scan:	15KHz to 33KHz
Vertical Scan:	45Hz to 100Hz
Power Requirements:	90VAC-132VAC or 180VAC-264VAC, 50/60Hz
Power Consumption:	250W
Dimensions (HxWxD):	254x956x651mm (10"x37.63"x25.63") HWL
Weight:	75 lbs
Price:	$15,995.00

Electronic Systems Products, Inc.
AQUASTAR 600 Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front Screen
Picture Tube:	3 Cathode Ray Tubes, 35KV @ 1ma each
Projection Lens:	f1.0 Refractive Lenses
Picture Size:	4 ft to 25 ft wide
Picture Brightness:	
Throwing Distance:	1.5xScreen Width

General

Video Format:	RGB, NTSC composite video
RGB Resolution:	
Video Resolution:	330 lines
Horizontal Scan:	14kHz to 42kHz
Vertical Scan:	45Hz to 150Hz
Power Requirements:	115VAC 60Hz, 220VAC 50Hz
Power Consumption:	400W
Dimensions:	9.5x20x28.5in, 22x51x72 cm HWL
Weight:	75 lbs (33.7 kg)
Price:	$12,995.00

Electronic Systems Products, Inc.
AQUASTAR IIIC Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front or Rear Screen
Picture Tube:	3 Cathode Ray Tubes, 36KV @ 1ma each
Projection Lens:	High-resolution, coated f1.0 lenses
Picture Size:	4 ft. to 20 ft. wide
Picture Brightness:	
Throwing Distance:	1.5xScreen Width (6′ image = 9′ throw)

General

Video Format:	PAL, SECAM, NTSC composite video
RGB Resolution:	800 lines
Video Resolution:	330 lines
Horizontal Scan:	15KHz to 37KHz
Vertical Scan:	40Hz to 120Hz
Power Requirements:	115VAC 60Hz, 220VAC 50Hz
Power Consumption:	400W
Dimensions:	22x51x72 cm (9.5x20x28.5 in) HWL
Weight:	33.7 Kg. (75 lbs)
Price:	$9,995.00

General Electric Company
TALARIA PJ4500 Television Projectors

Optical

Projection System:	Single gun single path system
Picture Tube:	Single optical path light valve
Projection Lens:	86 mm lens, less than 1.5% distortion
Picture Size:	4 feet to greater than 24 feet
Picture Brightness:	325 lumens
Throwing Distance:	5 feet to 200 feet

General

Video Format:	NTSC or RGB
RGB Resolution:	625 lines, 50 fps
Video Resolution:	525 lines, 60 fps
Horizontal Scan:	
Vertical Scan:	
Power Requirements:	105 to 132v or 190 to 260 volts 50/60 Hz
Power Consumption:	900W max
Dimensions:	22x17x34 in, HWD

Weight:	145 lbs
Price:	$55,000.00

General Electric Company
TALARIA PJ5050 Television Projectors

Optical

Projection System:	Single gun single path system
Picture Tube:	Single optical path light valve
Projection Lens:	86 mm lens, less than 1.5% distortion
Picture Size:	4 feet to greater than 24 feet
Picture Brightness:	650 lumens
Throwing Distance:	5 feet to 200 feet

General

Video Format:	NTSC or RGB
RGB Resolution:	625 lines, 50 fps
Video Resolution:	525 lines, 60 fps
Horizontal Scan:	
Vertical Scan:	
Power Requirements:	105 to 132v or 190 to 260 volts 50/60 Hz
Power Consumption:	900W max
Dimensions:	22x17x34 in, HWD
Weight:	145 lbs
Price:	$65,000.00

General Electric Company
TALARIA PJ5055 Television Projectors

Optical

Projection System:	Single gun single path system
Picture Tube:	Single optical path light valve
Projection Lens:	86 mm lens, less than 1.5% distortion
Picture Size:	4 feet to greater than 24 feet
Picture Brightness:	1300 lumens
Throwing Distance:	5 feet to 200 feet

General

Video Format:	NTSC or RGB
RGB Resolution:	625 lines, 50 fps
Video Resolution:	525 lines, 60 fps
Horizontal Scan:	
Vertical Scan:	
Power Requirements:	105 to 132v or 190 to 260 volts 50/60 Hz
Power Consumption:	900W max
Dimensions:	22x17x34 inches, HWD
Weight:	145 lbs.
Price:	$35,000.00

Inflight Services, Inc.
V STAR 5 Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front or Rear Screen
Picture Tube:	5" cathode ray tubes
Projection Lens:	Delta-2D or Delta-IIM
Picture Size:	50 inches to 20 feet diagonally
Picture Brightness:	480 foot lamberts (average)
Throwing Distance:	1.5x screen width

General

Video Format:	PAL, SECAM, NTSC 3.58, NTSC 4.43
RGB Resolution:	625 lines, 50 field
Video Resolution:	525 lines, 60 field
Horizontal Scan:	14KHz to 32KHz
Vertical Scan:	50Hz to 100Hz
Power Requirements:	110VAC/220VAC, 40Hz to 100Hz
Power Consumption:	250W
Dimensions:	9.25x22.25x36.6 in, HWL
Weight:	81.5 lbs
Price:	$14,495.00

Inflight Services, Inc.
BARCODATA 3 Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front or Rear Screen
Picture Tube:	5" High-resolution projection tubes
Projection Lens:	f1.0 coated lenses
Picture Size:	50 inches to 20 feet diagonally
Picture Brightness:	480 foot lamberts (10 gain screen)
Throwing Distance:	1.6x screen width

General

Video Format:	PAL, SECAM, NTSC 3.58, NTSC 4.43
RGB Resolution:	625 lines, 50 field, 10MHz full drive
Video Resolution:	525 lines, 60 field
Horizontal Scan:	15kHz to 32kHz
Vertical Scan:	
Power Requirements:	110VAC/220VAC
Power Consumption:	200W
Dimensions:	485x130x315 mm HWL
Weight:	7 kg
Price:	$9,995.00 (15MHz) $12,995.00 (30MHz)

Sony Video Communications Company
VIDMAGIC FP-62 Television Projection System

Optical

Projection System:	Single Lens Front Screen system
Picture Tube:	5.25" high-brightness color tube
Projection Lens:	Acrylic lens f1.0/130 mm
Picture Size:	30 to 200 inches diagonally
Picture Brightness:	50 fL with 19 gain 55" screen
Throwing Distance:	Approx. 1.1 m (3.7 ft)/30" screen Approx. 2 m (6.7 ft)/55" screen Approx. 3.8 m (12.7 ft)/100" screen

General

Video Format:	NTSC-composite video, VHF/UHF
Video Resolution:	240 lines
Horizontal Scan:	
Vertical Scan:	
Audio:	Built-in 3 watt public address system
Power Requirements:	120VAC/60Hz
Power Consumption:	110 watts
Dimensions (HWD):	246x220x668 mm (9¾x8¾x26¾ in)
Weight:	14 kg (30 lb 14 oz)
Price:	$1,505.00

Options
RM-27 Remote control unit with microphone
VLC-60 Projector Carrying Bag

Sony Video Communications Company
VPH-1020Q Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front Screen system
Picture Tube:	5.5 in high-brightness monochrome tubes
Projection Lens:	Acrylic lenses f1.0/130mm
Picture Size:	100 inches diagonally
Picture Brightness:	More than 65 foot lamberts
Throwing Distance:	Approx. 3,368mm (132.75 in)

General

Video Format:	PAL, SECAM, NTSC, NTSC 4.43
RGB Resolution:	600 lines, 2000 characters
Video Resolution:	400 lines
Horizontal Scan:	15.75KHz
Vertical Scan:	60Hz
Power Requirements:	110VAC/240VAC, 50Hz/60Hz
Power Consumption:	165W
Dimensions:	10.25x20x23.63 in, HWD
Weight:	26 kg, (57 lb. 5 oz)
Price:	$6,260.00

Options
VPR-722 Remote Controller
SV-722 Projector Pedestal
VPS-F100 Video Screen
VPS-100HG1 Video Screen
PSS-722 Ceiling Mount

Sony Video Communications Company
VPH-1030Q-5 Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front Screen system
Picture Tube:	5.5 in high-brightness tubes
Projection Lens:	Acrylic lenses f1.0/130 mm
Picture Size:	72 to 250 in, diagonally
Picture Brightness:	
Throwing Distance:	1.6 times screen width

General

Video Format:	PAL, SECAM, NTSC, NTSC 4.43
RGB Resolution:	900 lines RGB
Video Resolution:	570 lines
Horizontal Scan:	15kHz to 26kHz
Vertical Scan:	50Hz to 100Hz
Power Requirements:	110VAC/240VAC, 50Hz/60Hz
Power Consumption:	215W
Dimensions (HxWxD):	21x11⅛x23⅝ in, 532x280x597 mm HWD
Weight:	30 kg, (66 lb 2 oz)
Price:	$9,999.00

OPTIONS
VPR-722 Remote Controller
SV-722 Projector Pedestal
VPS-F100 Video Screen
VPS-100HG1 Video Screen
PSS-722 Ceiling Mount

Sony Video Communications Company
VPH-722Q Television Projection System

Optical

Projection System:	3 Tube, 3 Lens Front Screen system
Picture Tube:	5.5 in high-brightness monochrome tube
Projection Lens:	Acrylic lenses, f1.0/130 mm
Picture Size:	72 in, diagonally
Picture Brightness:	130 foot lamberts (13 gain screen)
Throwing Distance:	Approx. 2,480 mm (97.75 in)

General

Video Format:	PAL, SECAM, NTSC, NTSC 4.43
RGB Resolution:	600 lines, 2000 characters
Video Resolution:	400 lines
Horizontal Scan:	15.75KHz
Vertical Scan:	60Hz
Power Requirements:	120VAC, 50Hz/60Hz
Power Consumption:	165W
Dimensions (HxWxD):	10.25x20x23.63 in, HWD
Weight:	26 kg (57 lb, 5 oz)
Price:	$6,260.00

Options

VPR-722 Remote Controller
SV-722 Projector Pedestal
VPS-F100 Video Screen
VPS-100HG1 Video Screen
PSS-722 Ceiling Mount

APPENDIX C. DIRECTORY OF LASERDISC INTERFACES

Allen Communication
UVC (Universal Video Controller)

This unit is an intelligent, self-contained interface that links virtually any computer with multiple videodisc and videotape players.

Features
- Controls up to two disc and two tape players
- 1K RAM buffer
- Z80 microprocessor, 2.5 MHz
- RS-232C connectors
- Auto baud rate detection from 150-19200BPS
- Accepts 4 audio sources, switches 2 channels out
- Accepts 3 video sources, switches 1 channel out
- Supports overlay of synchronized video
- Custom cables and demo disc/tape provided

Price: $1,200.00

Allen Communications
VMI (Videodisc-Microcomputer Interface)

This unit will interface an APPLE II computer with any of the disc players currently on the market.

Features
- Can use either Apple Pascal or Basic formats
- Multiple boards in one computer can run several videodisc players
- Standard RS-232C connections
- Baud rates 150, 300, 600, 1200, 2400, 4800, & 9600BPS
- Software can switch audio and video between monitor or computer input
- Cables and demo disc provided

Price: $575.00

Options
- Enhanced Super PILOT authoring software available
- Microkeyer video overlay board available
- Software and cables for additional players available

Allen Communications
MVP Interface (Most Valuable Peripheral)

Features
- Compatible with Apple II+, IIe, IIc, Commodore 64, Atari, and other microcomputers in progress
- Supports Pioneer VP1000, PR-8210, LD-V700, LD-V4000, Magnavox 8010, Sylvania 7200 players
- Can use Pascal, Basic or SuperPilot programs
- Software Command Menu provides exercise of all commands through single keystrokes
- Software can switch audio and video between monitor or computer input
- Cables and demo disc provided

Price: $149.95

BCD Associates
VIPc IBM-PC Videotape/Videodisc Controller

Features
- Contains an internal microprocessor
- Simple user commands can access all videodisc functions
- Compatible with all current disc players except Hitachi, Philips, Pioneer LD-V6000
- Compatible with the IBM-PC, Compaq, Columbia, Corona and other similar computers
- The plug-in board comes with up to two modules for disc, tape or one of each
- Supports the use of the Microkey graphics overlay system

Price: $1,195.00

Options
- Board with combination of any two modules tape or disc ($1,695.00)
- Microkey overlay system for IBM ($2,800.00)

Comsell, Inc.
VID-GO Controller Board

Features
- Compatible with IBM-PC, XT, AT, and compatible computers
- Z8 control processor
- 8K of ROM or 4K of ROM and 2K of RAM
- 4 parallel ports, 1 serial port, a special serial port for the COMSELL Casual-User keypad, and a special port to control and invert sync for the Sony line of Profeel monitors
- Supports the Pioneer LD-V1000 videodisc player
- Single screen switching

Price: $595.00

Health EduTech
EDUTECH IVC-1 - Videodisc Interface

Features
- For use with Sony LDP-1000A, 2000, and Pioneer LD-V6000 videodisc players
- Can switch between RGB and NTSC screens on monitors equipped with that feature
- Requires no special computer card

Price: $250.00

IEV Corporation
IEV-1200/2000 IBM-PC Overlay and Disc Controller Board

Features
- Overlay RGB onto NTSC composite video
- 128K of user memory
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Available with RS-232 or programmable parallel port control
- Compatible with IBM-PC or XT
- Single screen switching
- Graphics board is compatible with most standard IBM software programs, 640x480x16 with a palette of 4096

Prices:
$2,495.00 IEV 1200/2000 with normal video output
$2,795.00 IEV 1200/2010 with higher quality video output
$2,995.00 IEV 1210/2010 for use in a separate off-board box in multiple card applications

IEV Corporation
IEV-60 Disc Controller System with Graphic Overlay

Features
- Overlay RGB onto NTSC composite video
- Can drive NTSC or RGB color monitors
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Contains on-board Motorola 68000 32-bit microprocessor with memory to run user programs
- This system requires no additional microcomputer
- Parallel or serial ports allow compatibility with most current microprocessors
- Graphics resolution of 640x408x16 from a palette of 4096
- Single screen switching
- Text and special characters of different styles and sizes
- Graphics commands for picture creation
- Controlled by most higher-level languages, including Pascal, BASIC, FORTRAN, and COBOL

Prices:
$3,600.00 With 128K user memory
$4,500.00 With 512K user memory

Interactive Training Systems
ITS-3000 Interface Controller

Features
- For use with IBM-PC computers
- Works with Beta or VHS videotape, and laserdisc players
- Converts NTSC video to RGB video
- Supports earphone attachment
- RS-232C connections
- Single screen switching
- Graphic Overlay Capabilities
- Time code reader and regenerator
- 1200 baud interface, 8 bit ASCII with 2 stop bits
- 18.75"x14.25"x3.5" (WDH)

Price: $2,995.00

J.A.M. Inc.
JAM Card Videodisc Interface

Features
- For use with IBM-PC computers
- Single screen switching
- Serial or Parallel capabilities
- Compatible with the following players: Pioneer LD-V1000, 4000, 6000, 6010, & 7820-3 Sony LDP-1000, 1000A, LDP-180, & LDP-2000 Hitachi 9500
- Software support drivers included
- One set of specified cables included

Price: $395.00 (Includes DiscWriter course writer)

Learncom
MIC System 2000 - Videodisc Overlay Interface

Features
- For use with IBM-PC, XT, AT computers
- Supports graphic overlay
- Can be used in PAL or NTSC video formats
- System includes Interactive Video Controller Card, Interactive Video Graphics Card or an interface to the IBM Enhanced Graphics Adaptor, all connecting cables, MIC Software Diskette, and a User Guide and Installation Manual

- Supports mouse, light pen, touch screen, and joystick
- Software interface available for any authoring language
- Automatic fading or "Soft-editing" feature included
- Compatible with existing IBM software

Price: $1,950.00

New Media Graphics
PC-Graphover Videodisc Overlay Interface

Features
- Complete compatibility with IBM software
- Graphic overlay capabilities
- Pixel addressable, 640x400
- Graphics selectable 16 out of 4,096 colors
- Multiple character fonts with selectable drop shadow
- Analog RGB output (RS-170)
- Digital data readback from videodisc
- Interface for Pioneer LD-V4000 videodisc player
- RS-232C interface for other players
- Supports touch screen, mouse, and light pen
- Graphics libraries and software demo included
- Uses two slots in the PC

Price: $1,990.00

Options
- Expansion board for 265 simultaneous colors ($695.00)

Expansion boards for 4,096 simultaneous colors ($1,390.00)
Lightpen ($190.00)
Mouse ($190.00)
19 inch monitor w/touch screen ($1,590.00)
Player control cable ($90.00)
Enhanced graphics library (supports window management) ($290.00)
NMG-Font library ($190.00)
NMG-Paint ($290.00)

New Media Graphics
Graphover 9500 Videodisc Overlay Interface

Features
- Interfaces to any computer
- Graphic overlay capabilities
- Pixel addressable, 768x484
- Graphics selectable 16 out of 64 colors
- Resident and down-loadable character fonts
- RGB RS-170 and NTSC video outputs
- Pan, zoom, blink, split-screen, and hardware area fill
- Interfaces to any videodisc player
- RS-232C interface
- Supports touch screen, mouse, tablet, joystick, and light pen
- Controls two videodisc players simultaneously
- Software programs available

Price: $9,850.00

Options
- Lightpen, resolution 384x242 ($1,450.00)
- Graphics tablet, 11x11 ($1,450.00)
- Mouse, resolution 768x484 ($750.00)

Infra-red touch screen ($1,950.00)
- Resistance touch screen ($2,250.00)

Font editor program ($395.00)
- Paint program ($495.00)

Online Computer Systems
VDC-100 Videodisc Controller Board

Features
- For use with IBM-PC computers
- Includes touch panel interface for the Sony PVM1271Q
- Allows multiple controllers within one PC
- Controls any interactive laserdisc player
- Cables are included for specified configuration
- Any cable configuration is optionally available
- PILOTplus, PASCAL MT + library, and C library are available

Price: $350.00

Options
- Second set of cables ($75.00)
- PILOTplus ($1,000.00)
- PASCAL MT + library ($100.00)
- C library ($100.00)

Online Computer Systems, Inc.
GL-512 Videodisc Controller with Overlay

Features
- High resolution graphics 512x480 pixels
- 16 colors from a palette of 4096
- Hardware pan and zoom (256x240x16 color resolution)
- Video images can be overlayed with position dependent graphics
- Multiple card options for one PC to control multiple displays and disc players
- All interface hardware included to run disc player and peripherals
- Controls most laser videodisc players
- Broadcast quality RGB color graphics
- PILOTplus, PASCAL MT + , or C libraries available

Price: $1,500.00

Options
- PASCAL MT+ library ($150.00)
- C library ($150.00)
- PILOTplus ($1,000.00)
- Studio-PC graphics ($1,200.00)

Optical Data Corporation
VAI-II Videodisc/Apple Interface

Features
- For use with Apple II or IIE computers
- Software based controller connects to game paddle port
- No modifications necessary
- Operates with the following laserdisc players: Pioneer VP-1000, LD-1100, PR-8210; Magnavox VC8010GY; Sylvania VP7200
- Software, sample programs and cables included
- Single screen switching

Price: $125.00

Options
- IN04 Interface cable for LD-700 ($15.00)
- IN05 Interface cable for LD-V4000 ($15.00)

Optical Data Corporation
ATVI Audio Tape/Videodisc Interface

Features
- No computer needed
- Videodisc control commands are on audiotape
- Voice or music can be used on second audio track
- Filmstrip style programs are easily programmed
- Compatible with the following laserdisc players; Pioneer VP-1000, PR-8210, DVA-7820, LD-1100; Magnavox VC8010GY; Sylvania VP7200

Price: $125.00

Poseidon Systems
Apple II Laserdisc Controller

Features
- Plugs into one slot on Apple II, IIe, or II+
- Controls one or two players from one card
- Basic commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included
- Single screen switching

Price: $195.00

Poseidon Systems
Commodore Laserdisc Controller

Features
- Plugs into one slot on Commodore computers
- Controls one player
- Basic commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included

Price: $129.00

Poseidon Systems
IBM Compatible Laserdisc Controller

Features
- Plugs into one slot on IBM or IBM compatible computer
- Controls up to four players from one card
- Commands can be called from most authoring languages
- Several routines are included
- Supports Pioneer LD-700 and LD-V4000 videodisc players
- All cables and interface adapters included
- Single screen switching

Price: $375.00

Symtec
DVA Videodisc Control Card

Features
- Plug into single APPLE peripheral slot
- 8-bit parallel bi-directional communication
- Software supports 7820-2 and 7820-3 players
- Single screen switching
- Software on DOS 3.3 disk
- 75 ohm video inputs
- 75 ohm video outputs
- Software accessible from BASIC programs

Price: $350.00

Symtec
Sony Videodisc Control Card

Features
- Plug into single APPLE peripheral slot
- RS232 serial interface, bi-directional
- Single screen switching

- Software on DOS 3.3 disk
- Two 75 ohm video inputs
- 75 ohm video output
- Software accessible from BASIC programs

Price: $350.00

Systems Impact
VID-232 Videodisc Interface

Features
- For use with any computer with an RS-232 serial port
- Serial and parallel ports to control most videodisc players
- Built-in RF modulator for use with a standard television in a two screen environment
- Supports most authoring languages
- Single screen switching

Price: $695.00

Technovision Inc.
TSI-101 Serial Interface Adaptor

Features
- Links Pioneer LD-V1000 or LD-V4000 to any RS232C device
- 300, 1200, 2400, or 9600 baud, selectable
- Fully supports player I/O protocols
- Internal buffers can receive up to 128 command characters
- May be used as a standalone unit

Price: $285.00

U.S. Video
OVERLAY! 110 Videodisc Controller

Features
- Compatible with IBM-PC, XT, AT computers
- Capable of graphic overlay
- Compatible with most graphics cards
- Supports most videodisc players
- Supports most popular IBM standard software

Price: $980.00

Video Associates Labs
PC Microkey System Control/Overlay Systems

Standard Features
- The PC Microkey System is fully IBM-PC compatible
- Will work with off-the-shelf software
- Compatible with AT&T, IBM-CGA or EGA, Persyst Color II, Sperry, and Tecmar graphics cards
- Videodisc controller for most current players included
- All cards must be physically cabled to the resident color graphics card by Video Associates Labs (included in price)
- Resolution and software are determined by the individual graphics cards
- Two slots required

Model 1125
- Parallel or serial ports
- Keying monitors (Sony PVM, KX series or equivalent) required
- Available in PAL standard

Model 1175
- All of the Model 1125 features included
- Addition of a second port for controlling other disc players
- Available in PAL standard

Model 1225
- Parallel or serial ports
- For use with any analog RGB monitor
- Optional fade unit for audio and video

Model 1275
- All of the Model 1225 features included
- Addition of a second port for controlling other disc players

Model 1300
- For use with most NTSC video sources
- Compatible with any composite NTSC monitor or keying monitor
- Broadcastable and recordable NTSC composite video output
- Built-in parallel port

Prices:
$1,345.00 for Model 1125 (single video input)
$1,645.00 for Model 1175 (dual video input)
$1,595.00 for Model 1225 (single video input)
$1,645.00 for Model 1275 (dual video input)
$1,995.00 for Model 1300 (single video input)

Options
- EGA Color Graphics Card ($595.00)
- IBM Color Graphics Card ($275.00)
- Persyst Color II Graphics Card ($195.00)
- Tecmar Graphics Master Card ($695.00)
- MicroKey Fader ($495.00)

Visage, Inc.
V:LINK 1000 Videodisc Interface with Overlay

Features
- Uses one expansion slot on an IBM-PC with 256K (512K and two disk drives needed for development)
- Universal videodisc control interfaces most current players
- NTSC graphics generation and overlay capabilities included
- Real-time data decoding from the videodisc
- Operating software, graphics development software and a package of useful graphics elements are included
- 256x192 pixel resolution with 16 colors
- "Open architecture" allows for third party software in development and delivery
- Internal sync for independent operation

Price: $1,150.00

Options
- V:Link Bit Pad Package (BPD-1000) ($850.00)
- Videodisc Interface Cables (Specify disc player)($35.00 to $75.00)

Visage, Inc.
V:LINK 1500 Videodisc Interface with Overlay

Features
- Uses two expansion slots on an IBM-PC with 256K (512K and two disk drives needed for development)
- Universal videodisc control interfaces most current players
- RGB graphics generation and overlay capabilities included
- Real-time data decoding from the videodisc
- Operating software, graphics development software and a package of useful graphics elements are included
- 256x192 pixel resolution with 16 colors
- "Open architecture" allows for third party software in development and delivery
- Internal sync for independent operation

Price: $1,850.00

Options
- V:Link Bit Pad Package (BPD-1000)($850.00)
- Videodisc Interface Cables (Specify Disc player)($35.00 to $75.00)

Visage, Inc.
V:LINK 1550 Videodisc Interface with Overlay

Features
- Uses two expansion slots on an IBM-PC with 256K (512K and two disk drives needed for development)
- Universal videodisc control interfaces most current players
- RGB graphics generation and overlay capabilities included
- Real-time data decoding from the videodisc
- Operating software, graphics development software and a package of useful graphics elements are included
- 256x192 pixel resolution with 16 colors
- 300x200 pixel resolution with 4 colors
- "Open architecture" allows for third party software in development and delivery
- Internal sync for independent operation

Price: $2,150.00

Options
- V:Link Bit Pad Package (BPD-1000)($850.00)
- Videodisc Interface Cables (Specify Disc player)($35.00 to $75.00)

Visual Database Systems
PC/LD Videodisc Interface

Features
- Includes cable and software driver
- For use with IBM-PC, PCjr or XT computers
- For use with Pioneer LD-700, LD-V4000 and LD-V6000 disc players
- Software is capable of issuing the entire command set to the disc player
- Can be connected to the Cassette or Parallel port
- Can control up to four videodisc players

Prices:
$65.00 (for parallel port version)
$95.00 (for cassette port version)

Whitney Educational Services
A1320 Videodisc/Audio Interface

Features
- Two screen system
- Control videodisc player with audio tones on videotape
- Real-time video on tape can be augmented with slides from the disc
- Both players can display video simultaneously
- Compatible with Apple computers

Price: $100.00

Options
- PC1320 interface for the IBM-PC ($100.00)
- SM1320 interface for the Sony SMC-70 ($100.00)

Whitney Educational Services
PC-500-A IBM-PC Disc/Tape Controller

Features
- For use with IBM-PC or XT computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $990.00

Whitney Educational Services
SM-500-A SMC-70 Disc/Tape Controller

Features
- For use with Sony SMC-70, 70G computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $895.00

Whitney Educational Services
A3001A Apple Disc/Tape Controller

Features
- For use with APPLE II & IIe computers
- Operate videotape and disc players together or separately
- May be used with the Insight 2000 Plus authoring language
- Compatible with Pioneer LD-V4000, PR-8210; Hitachi 9500; and Sony LDP-1000A players

Price: $695.00

APPENDIX D. DIRECTORY OF LASERDISC PERIPHERALS

GRAPHIC OVERLAY DEVICES

IEV Corporation
IEV-1200/2000 IBM-PC Overlay and Disc Controller Board

Features
- Overlay RGB onto NTSC composite video
- 128K of user memory
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Available with RS-232 or programmable parallel port control
- Compatible with IBM-PC or XT
- Single screen switching
- Graphics board is compatible with most standard IBM software programs, 640x480x16 with a palette of 4096

Prices:
$2,495.00 for IEV 1200/2000 with normal video output
$2,795.00 for IEV 1200/2010 with higher quality video output
$2,995.00 for IEV 1210/2010 for use in a separate off-board box in multiple card applications

IEV Corporation
IEV-60 Disc Controller System with Graphic Overlay

Features
- Overlay RGB onto NTSC composite video
- Can drive NTSC or RGB color monitors
- Genlock sync generator syncs to videodisc or videotape players
- Control features for videodisc or videotape players
- Contains on-board Motorola 68000 32-bit microprocessor with memory to run user programs
- This system requires no additional microcomputer
- Parallel or serial ports allow compatibility with most current microprocessors
- Graphics resolution of 640x408x16 from a palette of 4096
- Single screen switching
- Text and special characters of different styles and sizes
- Graphics commands for picture creation
- Controlled by most higher-level languages, including Pascal, BASIC, FORTRAN, and COBOL

Prices:
$3,600.00 With 128K user memory
$4,500.00 With 512K user memory

New Media Graphics
PC-Graphover Graphic Overlay Unit

Features
- Complete compatibility with IBM software
- Graphic overlay capabilities
- Pixel addressable, 640 x 400
- Graphics selectable 16 out of 4,096 colors
- Multiple character fonts with selectable drop shadow
- Analog RGB output (RS-170)
- Digital data readback from videodisc
- Interface for Pioneer LD-V4000 videodisc player
- RS-232C interface for other players
- Supports touch screen, mouse, and light pen
- Graphics libraries and software demo included
- Uses two slots in the PC

Price: $1,990.00

Options
- Expansion board for 265 simultaneous colors ($695.00)
- Expansion boards for 4,096 simultaneous colors $1,390.00 Lightpen ($190.00)
- Mouse ($190.00)
- 19 inch monitor w/touch screen ($1,590.00)
- Player control cable ($90.00)
- Enhanced graphics library (supports window management) ($290.00)
- NMG-Font library ($190.00)
- NMG-Paint ($290.00)

New Media Graphics
Graphover 9500 Graphic Overlay Unit

Features
- Interfaces to any computer
- Graphic overlay capabilities
- Pixel addressable, 768 x 484
- Graphics selectable 16 out of 64 colors
- Resident and down-loadable character fonts
- RGB RS-170 and NTSC video outputs
- Pan, zoom, blink, split-screen, and hardware area fill

- Interfaces to any videodisc player
- RS-232C interface
- Supports touch screen, mouse, tablet, joystick, and light pen
- Controls two videodisc players simultaneously
- Software programs available

Price: $9,850.00

Options
- Lightpen, resolution 384 x 242 ($1,450.00)
- Graphics tablet, 11 x 11 ($1,450.00)
- Mouse, resolution 768 x 484 ($750.00)
- Infra-red touch screen ($1,950.00)
- Resistance touch screen ($2,250.00)
- Font editor program ($395.00)
- Paint program ($495.00)

Learncom
MIC System 2000 Videodisc Overlay Interface

Features
- For use with IBM-PC, XT, AT computers
- Can be used in PAL or NTSC video formats
- System includes Interactive Video Controller Card, Interactive Video Graphics Card or an interface to the IBM Enhanced Graphics Adaptor, all connecting cables, MIC Software Diskette, and a User Guide and Installation Manual
- Supports mouse, light pen, touch screen, and joystick
- Software interface available for any authoring language
- Automatic fading or "Soft-editing" feature included
- Compatible with existing IBM software

Price: $1,950.00

Online Computer Systems, Inc.
GL-512 Graphic Overlay Card

Features
- High resolution graphics 512x480 pixels
- 16 colors from a palette of 4096
- Hardware pan and zoom (256x240x16 color resolution)
- Video images can be overlayed with position dependent graphics
- Multiple card options for one PC to control multiple displays and disc players
- Broadcast quality RGB color graphics
- PILOTplus, PASCAL MT+, or C libraries available

Price: $1,500.00

Options
- PASCAL MT+ library ($150.00)
- C library ($150.00)
- PILOTplus ($1,000.00)
- Studio-PC graphics ($1,200.00)

Symtec
Professional Graphics System (PGSIII)
Specifications

Features
- 16K or 64K dynamic RAM chips
- 512x480 pixel resolution
- 4096 colors
- Crawl or roll text
- Center by line or page
- Flash words
- Allows font creation
- Built-in keyer with drop shadow and border
- Mixed fonts and colors
- Save images on floppy disk
- Preview capability
- Random pixel access
- Computer interface to APPLE II Plus or IBM-PC
- Broadcast quality, NTSC standard
- Video overlay capabilities
- Adjustable hue, chrominance, luminance, blank, and sync
- 17x5.5x13 inches WHD
- 75 ohm/high impedance switchable video output
- Horizontal sync adjustment for proper phasing
- Internal or external sync
- Zoom and reduce features

Price: $7,000.00

Options
- PGS III 2-page system ($8,500.00)
- PGS II 2-page system with preview ($10,000.00)

Synetix, Inc.
Videosprite Graphics Overlay System

Features
- Requires Apple II series micro with 48K memory, 1 Disk drive and DOS 3.3 operating system with two monitors (one for programming input and one for video output)
- Large range of computer graphics capabilities
- Easy to use command language
- Commands can be abbreviated
- Background resolution of 256Hx192V pixels
- Standard text mode with 40 columns by 32 rows
- 14 selectable colors and black
- Video output retains standard of video input
- 16K of dedicated video RAM on board
- Incoming video can be interlaced or non-interlaced

• Signal is phase and frequency locked to color burst, horizontal and vertical signals of video source
• Includes Painting and Titling software (P.A.T.) & system documentation

Price: $995.00

Options
• Flashcard 144K (RAM disk emulator)($395.00)
• Flashcard 288K (RAM disk emulator)($595.00)
• Complete System (includes; videosprite board, P.A.T. software, Flashcard 288K and Apple IIe starter system with documentation) ($3,695.00)

U.S. Video
Overlay! 110 Overlay System/Videodisc Controller

Features
• Compatible with IBM-PC, XT, AT computers
• Capable of graphic overlay
• Compatible with most graphics cards
• Supports most videodisc players
• Supports most popular IBM standard software including; dBase, R:Base, Savvy, Knowledgeman, 1-2-3, Sidekick, Wordstar Chart Master, and PC Paintbrush

Price: $980.00

Video Associates Labs
VB-3 Microkey System for Graphics Overlay

Features
• Compatible with Apple II, IIe, and II+ computers
• NTSC Standard composite video signal, 75 ohm self term.
• Normal resolution, 280 pixels per line; 192 lines; 53,760 pixels per picture; 140 nanosecond width
• Works with VTR's & Videodiscs without a TBC
• Operates without a video input
• Genlock Sync Generator locks to external sources
• Proc amp regenerates burst and sync
• Capable of producing 2,560,000 colors
• Broadcast NTSC keyed video output
• Power Supply included
• Several Optional Software Packages available

Prices:
$1,795.00 for VB-3E Microkeyer For the Apple IIE
$1,695.00 for VB-3 Microkeyer For the Apple II/II+

Option
• Apple Microkey System Software ($200.00)

Video Associates Labs
PC-Microkey System for Graphics Overlay

Standard Features
• The PC-Microkey System is fully IBM-PC compatible
• Will work with off-the-shelf software
• Compatible with AT&T, IBM-CGA or EGA, Persyst Color II, Sperry, and Tecmar graphics cards
• Videodisc controller for most current players included
• All cards must be physically cabled to the resident color graphics card by Video Associates Labs (included in price)
• Resolution and software are determined by the individual graphics cards
• Two slots required

Model 1125
• Parallel or serial ports
• Keying monitors (Sony PVM, KX series or equivalent) required
• Available in PAL standard

Model 1175
• All of the Model 1125 features included
• Addition of a second port for controlling other disc players
• Available in PAL standard

Model 1225
• Parallel or serial ports
• For use with any analog RGB monitor
• Optional fade unit for audio and video

Model 1275
• All of the Model 1225 features included
• Addition of a second port for controlling other disc players

Model 1300
• For use with most NTSC video sources
• Compatible with any composite NTSC monitor or keying monitor
• Broadcastable and recordable NTSC composite video output
• Built-in parallel port

Prices:
$1,345.00 for Model 1125 (single video input)
$1,645.00 for Model 1175 (dual video input)
$1,595.00 for Model 1225 (single video input)
$1,645.00 for Model 1275 (dual video input)
$1,995.00 for Model 1300 (single video input)

Options
• EGA Color Graphics Card ($595.00)
• IBM Color Graphics Card ($275.00)
• Persyst Color II Graphics Card ($195.00)

- Tecmar Graphics Master Card ($695.00)
- MicroKey Fader ($495.00)

TOUCH SCREENS

Allen Communication
Touchpoint Touch Screen

Features
- For use with IBM-PC, XT, AT, and compatible computers
- Supports several models of videodisc players
- 100 x 100 sensors for up to 10,000 active touch points
- RS-232C from host computer
- Zenith ZVM 135 monitor included

Price: $1,450.00

Carroll Touch Technology Corporation
Touch Screens

The Carroll Touch Technology Corporation has a wide range of touch screens available for the common monitors and terminals used in the computer field. The prices range between $1,900.00 and $2,500.00.

13" Monitors
- Aydin 8039,8810
- Mitsubishi C3419
- Ramtek GM714
- Sanyo DMC6013
- Sony PVM-1271Q

19" Monitors
- Aydin 8025,8026,8040,8830
- Ikagami DM511H
- Mitsubishi C3910,C3919,C6912,C6919
- Ramtek GM719,GM720,859C
- Sony CVM1900

Terminals
- Hewlett-Packard 264X series, DEC VT100TM and VT103TM, Datamedia Excel 22, Excel 24 and Color-scan, & ISC8001G

Flat Touch Panels
- 9"x 9" window ($1,800.00)
- 17"x 17" window ($2,900.00)

Generic Kits
(price includes $600 controller)
- 9" diag. frame ($1,600.00)
- 12" diag. frame ($1,800.00)
- 15" diag. frame ($2,000.00)
- 17" diag. frame ($2,200.00)
- 19" diag. frame ($2,400.00)

Contact Carroll for information on specific monitors

Computer Technology Associates
CTA 500X Soft-Touch Touch Screen with Interface

The Touch Screen interface is designed to be used with the Apple II+ or Apple IIE microcomputer, and the screen can attach to any 12 inch video monitor.

Features
- Infrared emitter-sensor array, self scanning
- 96 horizontal by 64 vertical point resolution
- Active touch area, 11 in. vertical by 8 in. high
- Outside dimensions 12x10x.75 in WHD
- Input power +5v at 600mA from Apple power supply
- Occupies 1 Apple II interface slot
- Parallel cable between screen and interface
- Apple computer buss between interface and CPU
- All necessary hardware and software supplied
- No extra assembly language subroutines necessary
- Screen accessed through Applesoft BASIC

Price: $695.00

Ear Three Systems Manufacturing Company
The Participator Touch Screen

This screen is designed to be mounted flush with the work surface of a desk, and includes an expanded touch area. The monitor is mounted under the screen. The system includes;
- 11x8.5 inch display screen (14 inch diameter)
- 14x12 inch touch screen (18⅝ inch diameter)
- Audio system with two audio jacks and a microphone jack for verbal input to the computer

Price: $4,000.00

Electro Mechanical Systems, Inc.
Touch Information Display Touch Screen

Features
- Custom designed touch screens
- Patented Ambient Light and Noise Reduction Circuit
- Box frame and window frame configurations available
- Custom bezel redesign and display packaging available

Price: $1,265.00 and up depending upon application

Elographics, Inc.
Touch Screens

Features
- Resistive type screen
- 4000x4000 point resolution
- Easily installed and calibrated
- Flat Screens available
- IBM-PC, XT, or AT controller is needed

Prices:
$800.00 for 12 and 13 inch screens
$900.00 for 19 inch screens
$300.00 for IBM controller

MicroTouch Systems Inc.
Microtouch Kit Touch Screen Specifications

MicroTouch Kits are designed to configure existing terminals, monitors and other CRT displays with touch-sensitive screens.
- Analog capacitive sensing technology
- 256x256 touch points
- 75 touch points per second
- Offered in 9, 12, 13, 15, 19 inch, and custom-sized screens
- Uses RS232C serial port
- 110-9600 baud
- Kits include glass sensor, intelligent controller, serial interface, and EEPROM
- Device driver for touch screen controller is available
- Software packages available

Prices:
$995.00 for 9, 12, 13 inch diagonal
$1,045.00 for 14, 15 inch diagonal
$1,295.00 for 19 inch diagonal

Options
- Additional power supply ($95.00)
- Power supply w/enclosure ($175.00)
- RS232C cable ($20.00)
- DrivePoint device driver ($125.00)

Touch Technology, Inc.
PC-Touch Touch Screens

Features
- Available in resistive and capacitive models
- 1000 x 1000 contact points (resistive)
- 32, 56, and 60 contact points (capacitive)
- Standard RS232 communications

Prices:
$749.00 for 13 inch screen (installed add $100)
$1,175.00 for 19 inch screen (installed add $100)

LIGHT PENS

FTG Data Systems
FTG Light Pens

Features
- For use with IBM-PC and compatible computers
- Will work with IBM-PCjr computers
- Optical push-tip switch standard
- Will not work with IBM monochrome display
- Several software packages available

Price: $195.00

Options
- Hi-Resolution Light Pen Board ($149.00)

Symtec
Professional Light Pen Specifications

Features
- Push-tip nose switch on pen
- 0.3 microsecond response time at 1 milli-lambert screen brightness
- Touch sensitive
- 12.5mm diameter by 175mm long (.5in by 6.875 in)
- Pen and cable 168 grams (6oz)
- Plug in interface for compatible computers
- Adjustable for light sensitivity
- Can resolve a single pixel

Compatible Computer Systems
- Apple IIE, II+, III
- Atari 400,800
- IBM-PC
- Commodore VIC-20, 64
- Franklin Ace

Compatible Screens
- Any color TV or monitor
- Any black and white TV or monitor
- Most green screens

Prices:
$250.00 for Apple compatible
$175.00 for IBM-PC compatible
$15.00 (extra) for Push-tip model

Video Associates Labs
LPS II Light Pen (by Gibson Labs)

Features
- True Raster-Scan light pen
- Locations are plotted 60 times per second

Price: $349.00

Warp Speed Computer Products
Warp Speed—Light Pens

Features
- Compatible with IBM-PC and compatible computers
- Can be used on Amber and Green monitors
- Includes all necessary connecting cables
- Includes Light Pen Controller software
- Comes with side button switch or push tip switch

Price: $199.00

Personal Computer Supply
Voice Input Module

Features
- For use with the Apple II or IIe
- 98% + recognition accuracy
- Vocabulary listing and voice pattern stored on disk
- Uses one adapter slot
- Vocabulary is user defined
- 8K onboard memory
- Menu driven Voice Utility program included
- Programs available for Visicalc, Wordstar, Magic Window, List Handler, and Applesoft Basic to name a few
- Immediate response time
- 80 words or phrases per application
- Maximum word/phrase length 1.25 sec
- Minimum pause between words 160 msec
- VIM board, cables, manual, Voice Utility Program, and microphone are included

Prices:

VIM-1—Hand-held microphone included	
Apple II	Apple IIe
$845.00	$ 90.00
VIM-2—Gooseneck microphone included	
920.00	$ 995.00
VIM-3—Headset microphone included	
$950.00	$1025.00

Introvoice II (160 word vocabulary) add $200.00 to prices.

Accessories:

Wireless microphone (half mile dist.)	
Apple II	Apple IIe
$595.00	$595.00
Noise-cancelling gooseneck microphone with foot pedal switch	
$160.00	$160.00
Noise-cancelling headset boom microphone	
$180.00	$180.00
Programmer's Reference Manual	
$ 20.00	$ 20.00

Scott Instruments
Voiced Based Learning System

Features
- For use with Apple II or IIe computers with 48K or the Franklin computer
- 98% accuracy rate
- Instant response
- 40 word vocabulary, with overlays to access to additional sets of 40 word vocabularies
- Compatible with Pascal, Fortran, Basic, Applesoft, Pilot, and Machine Code
- Compatible with modems, printers and other peripherals
- Uses one Apple peripheral slot
- Compatible with VisiCalc, Visidex, Apple Plot, The Source
- All systems include reference manuals, headset microphone, and Voice Entry Terminal
- Maximum word length 1.5 second

Prices:
$895.00 for VBLS System (includes Author diskette) Stand alone version
$795.00 for VET-2 System (includes system diskette) Computer dependant system
$595.00 for Shadow/VET System (includes system diskette) Computer dependent system

MULTIPLE INPUT KEYPADS

Meeting Services Inc.
RESPONDER—Group Keypad System

Features
- 20-Key multifunction keypad
- Operates from a standard computer with an RS-232 port
- Up to 1,000 keypads can be used simultaneously
- Each keypad can be identified by the computer
- Interaction may occur concurrently at the individual, group and sub-group level
- Offers multiple-choice, yes/no, integer and floating point numeric (with optional arithmetic calculation), a

timed mode for competitive and task fulfillment signaling, and an open-key format for electronic hand-raising
- Response data can be displayed immediately in graphic form, stored for later evaluation, or printed
- PromtText can scroll messages to one or all of the keypads
- Tone can be generated via built-in speaker or earplug
- 16 character single line alphanumeric backlit LCD display
- Systems include Responders, System Controller, cabling for power and data, and software to operate Responders from an IBM-PC or compatible

Prices:
$2,060.00 System 4 with 4 Responders
$6,284.00 System 24 with 24 Responders

Options
Responder 4-Pack System Expander ($844.00)
Power/Data Expander Pack (one needed for every 24 additional Responders) ($248.00)

VOICE SYNTHESIZER

Borg-Warner Educational Systems
UVS—Ufonic Voice System

Features
- Capable of adding human-sounding voice to any CBI lesson
- Operates on Apple II or IIe computers
- Works in any available Apple slot
- Card contains microprocessor, memory and synthesizer
- External amplifier/speaker included
- Instructional program and voice data are contained on a single diskette
- Additional software available

Price: $495.00

Options
- UF-SC, The Ufonic Speech Composer ($225.00) Includes 4 disks and Teacher's Guide to add speech to existing lessons.

STILL FRAME AUDIO DEVICES

EECO
VAC-300 Still Frame Video/Audio Converter

Features
- Up to 40 seconds of audio per still frame of video
- Each audio frame can store 10 seconds of real-time audio
- With 54,000 frames possible at 10 seconds per frame, 54,000 seconds or 150 hours of audio are possible with no video (see chart below)
- Up to 120 hours of audio with 10,000 slides per disc side
- Compatible with interactive VCR'S
- Computer controllable
- RS232 interface
- Baud rates 300 to 9600
- Audio frequency response 100 Hz to 3700 Hz, −3dB

Prices:
$2,500.00 for Printed Circuit Card
$3,000.00 for Stand-alone Desktop

Possible Frames Per Disc	Video Frames Per Segment	Audio Frames Per Segment	Number of Segments Possible	Audio Time Laserdisc Per Side Sec./Hours
54,000	0	1	54,000	540,000/150.0
54,000	1	1	27,000	270,000/75.0
54,000	1	4	10,800	432,000/120.0
54,000	3	4	7,714	308,560/85.7
54,000	3	1	13,500	135,000/37.5

LaserData
PC-TRIO—Still Frame Audio Card

Features
- Single plug-in card for the IBM-PC
- 75 hours of digital audio available on one disc side
- 800 Megabytes of computer data available on one disc side
- 200 K bytes/sec maximum data transfer rate
- Corrected error rate better than 10-12
- NTSC video format
- Three selectable levels of audio quality
- Maximum data integrity achieved by proprietary error

Level	Bandwidth Kilohertz	Sec./Frame	Sec./Event (standard)	Sec./Event (optional)
I	2.5	5	30	60
II	3.75	3.33	20	40
III	5.0	2.5	15	30

Price: $1,150.00

LaserData
TRIO 110—Still Frame Audio Controller

Features
- Uses a built-in Intel 80186 microprocessor
- 75 hours of digital audio available on one disc side
- 800 Megabytes of computer data available on one disc side
- 400 K bytes/sec maximum data transfer rate
- Corrected error rate better than 10-12
- NTSC video format
- Three selectable levels of audio quality
- Can interface up to four disc players
- Can multiplex up to four computers
- Control software, Information Retrieval Software, and Diagnostic Software available

Level	Bandwidth Kilohertz	Sec./Frame	Sec./Event (standard)	Sec./Event (optional)
I	2.5	5	30	60
II	3.75	3.33	20	40
III	5.0	2.5	15	30

Price: $2,950.00

Pioneer Video
SS-D1—Still Frame Audio System

Features
- Data storage capacity of 1000 floppy diskettes per side
- 35 hours of digital audio available on one disc side
- 427 Megabytes of computer data available on one disc side
- Reed-Solomon error correction method
- RS-232 Baud rate 300-38,400 selectable
- Three selectable levels of audio quality
- Error correction selectable between 10-4 to 10-12 for 0% to 53% redundancy.

Level	Bandwidth Kilohertz	Sec./Frame	Sec. SS-D1 Memory	Per Side Hours
I	2.5	3.6	28.1	35.2
II	5.0	1.8	14.0	17.6
III	7.5	1.2	9.3	11.7

Price: $1,500.00

Sony Video
SFA-1000 Still Frame Audio Adapter

Features
- Audio Playback Time, 1.5 to 20 seconds
- Optional expansion to total of 40 seconds allowing the storage of 15 hours of linear audio per disc side
- Audio frequency response, 3.5 kHz, −3dB
- Video input, 1V p-p
- Remote control, wireless infrared or cable
- Power requirement, 120VAC, 35W
- Dimensions, 3.28x10x14.16(HWD) 82x250x354 mm (HWD)
- Weight, 8.8 lbs (4kg)

Price: $2,500.00

VIDEODISC AUDIO NOISE REDUCTION

Pioneer Video, Inc.
R-1000 CX Noise Reduction System

The CX NOISE REDUCTION system is unique to the laserdiscs. It is a built in feature in many of the players but can be purchased separately. This system can supposedly improve the signal-to-noise ratio of the reproduced discs by as much as 14dB to more than 70dB (1kHz, 100% mod.IHF A). When connected to a system, the user only has to turn it on. There are no adjustments to worry about.

Price: $80.00

APPENDIX E. DIRECTORY OF LASERDISC SYSTEMS PACKAGES

APPLE COMPUTER INTERACTIVE VIDEODISC SYSTEMS

Actronics Learning Systems
CPR LEARNING SYSTEM

This system is designed specifically for use in training for CPR certification or recertification.

Features
- Industrial laserdisc player
- Microprocessor
- Random access audio cassette tape unit
- Two television monitors
- Light pen
- User control box
- Operating systems software
- One adult manikin
- All necessary cables and user documentation

Price:
Complete System: $20,000.00
Options
- Infant Manikin ($2,500.00)

Allen Communications
Totally Integrated Interactive (TII) System

Features
- Allen Communications Learning Station
- VMI, Video Microcomputer Interface with Demo
- Super Pilot Authoring Language with AC library diskette
- Pioneer Industrial Videodisc Player PR-8210
- Apple II Plus Computer or equivalent
- Disk Drive with controller
- 16K RAM card
- Amdek Color One 13" Monitor

Price: $4,395.00

Options
- NEC color monitor with touch screen ($1,500.00)
- VB-3E Microkey overlay system ($2,195.00)
- Pioneer LD-V1000 ($1,200.00)
- Philips VP832 player ($1,395.00)
- Gibson LPS-II Light Pen ($349.00)
- Koala Pad touch tablet ($124.95)

Superior Training Systems
Apple II/IIe Interactive Video System

This system is designed to be used with an Apple II/IIE with 64K, two disk drives, color monitor and a video player. The $2,400 package includes the Insight 2000 Authoring System. Packages complete with fully wired Learning Center cabinet and peripherals are available.

Features
- Plug in Video Controller Interface board with cables for a compatible video player.
- INSIGHT PLUS Courseware Authoring System with both Authoring and Lesson diskettes.
- Detailed and Quick Start Installation and Courseware Authoring Manuals.
- Videotape (VHS or Beta) tutorial on effective courseware authoring techniques.
- To be used with the following tape or disc players: Disc—Pioneer VP1000, 8210—Sony LDP-1000 Tape—Panasonic 8200 VTR—Sony Beta, U-Matic VTR's

Prices:

Disc or Tape	Disc & Tape
Complete System—$1,690.00	$2,400.00
Interface Only—$ 695.00	$ 895.00

PLATO INTERACTIVE VIDEODISC SYSTEMS

Control Data Corporation

CDC does not promote a specific videodisc delivery system but does advertise an authoring service for PLATO users. Any user of PLATO can take advantage of the videodisc technology with a Control Data PLATO terminal connected to a central PLATO System and a level three videodisc player, or a microcomputer that supports Control Data's Micro PLATO delivery software.
PLATO-compatible terminals are the Control Data IST, IST II, IST III, Viking 721-30/31, IBM-PC or Zenith Z100, and certain IBM-PC compatible microcomputers.
Micro PLATO-compatible micro-computers are the CDC110, IBM-PC and the Zenith Z100, and certain IBM-PC compatible micro-computers.

For more information on the PLATO system, contact Control Data Corporation at the address listed.

DEC PRO 380 COMPUTER INTERACTIVE VIDEODISC SYSTEM

Digital Equipment Corporation
IVIS—Interactive Video Information System

This system offers a stand-alone terminal that can be networked to a mainframe computer. The price listed is for the workstation and peripherals only. The authoring software and networking hardware must be purchased separately as well as the host mainframe. For detailed information on this system contact DEC at the address listed.

Features
- Digital Professional 380 personal computer
- Analog interface box
- VR241-A, RGB 13" color monitor
- Hitachi VP-9500 or Sony LDV-1000A videodisc player
- Software device driver
- RS232C connectors
- Baud rate from 50 to 19200
- Overlay enhancement (drop shadow width 1-15 pixels)
- Two floppy disk drives with 10 megabyte hard disk

Prices:
$10,000.00
$11,100.00 with touch screen

MicroTICCIT INTERACTIVE VIDEODISC SYSTEMS

Hazeltine Corporation
MicroTICCIT SYSTEM II

The system II configuration is designed to optimize courseware development and delivery for medium-scale computer-based training efforts. The system will support up to forty MicroTICCIT workstations, each of which can be used for student, instructor, or author functions. For detailed information on this system or any other systems, contact Hazeltine Corporation at the address listed.

Features
- Data General microECLIPSE S/20 host processor with 256 K bytes RAM
- 50 M bytes of fixed storage for on-line system software, student records, and courseware
- 15.4 M byte cartridge tape drive for loading or dumping data from fixed disk
- Data General operator console CRT for performing system startup, shutdown, and backup routines
- ARCNET Local Area Network communications interface for remote locations of up to four miles
- Modem for interfacing to Hazeltine's MicroTICCIT maintenance service network
- Can use the ADAPT authoring system for courseware development

Price: $75,000.00

Option
MicroTICCIT workstation ($7,000.00)

IBM-PC COMPUTER INTERACTIVE VIDEODISC SYSTEMS

Allen Communications
Totally Integrated Interactive (TII-PC) System

Features
- IBM-PC (640K)
- 10Meg hard disk, One floppy
- Microkey 1125 overlay and interface board
- Pioneer Industrial Videodisc Player LD-V1000
- Zenith ZVM 135, 14 inch color monitor

Price: $4,670.00

Options
- Touchpoint II touch screen ($875.00)
- Sony PVM 1910 color monitor ($845.00)

Digital Videodisc Technologies, Inc.
Video Window Digital Interactive Videodisc System

Complete system includes:
- IBM compatible CPU with 30Meg internal hard drive, 32,768 colors at 256 x 256 pixels, 16-bit concurrent MS-DOS, and 60Meg streamer backup drive
- Compatible for Sony LDP-2000, LDP-180 or Pioneer LD-V6000
- One floppy disk drive
- 12 inch color monitor with infrared touch screen with 30 vertical and 40 horizontal points continuously active
- Keypad with 72 alphanumeric keys and a 10-key numeric keypad with cursor arrow and function keys that emulates an IBM keyboard
- Supporting software that features, digital video, digital audio, graphics overlay, and supporting database frames

Price: $7,500.00

Option
- 400Meg external optical drive (WORM)($6,995.00)

Interactive Training Systems, Inc.
ITS 3100 Interactive Video Kit

Complete kit includes:
- ITS 3100 controller (full slot board for IBM and compatibles) with 16 color display, high-resolution text and graphics overlay, and RS232 serial control interface for videodisc
- High-resolution 13 inch color monitor
- Integral touch screen and controller
- Cabling and system documentation

Price: $2,995.00

Interactive Training Systems, Inc.
Interactive Videodisc Training System

Features
- IBM PC microcomputer
- High resolution color monitor
- Supports touch screen and light pen
- Laserdisc or videotape player
- ITS-2000 Controller

Price: $10,564.00

Option
- Authority software package ($12,000.00)

International Business Machines Corporation
INFOWINDOW Interactive Videodisc System

Complete system includes:
- IBM-PC XT (512K) Microcomputer
- 1200 IBM Enhanced Graphics Adapter
- 1203 IBM G Memory Module
- 3336 120K bytes Memory Module Kit
- InfoWindow display
- DOS 3.2
- GPIB card
- Enhanced Graphics Adapter jumper card
- Control Program
- Pioneer LD-V6000 videodisc player
- Pioneer cable group CK323

Price: $10,383.00

Online Computer Systems
IBM-PC PILOTplus Training System

The basic package includes:
- IBM PC with 128K RAM
- Two double sided disk drives
- IBM or Okidata 92 80 column printer
- PILOTplus Authoring Software
- 12" Sony PVM 1270Q color monitor
- VDC-100 Videodisc Control Card
- IBM Color Graphics Card
- Pioneer LD-V1000 Videodisc player (or equivalent)

Complete System: $6,000.00

Options
- Touch panel
- Graphics overlay
- IBM-PC XT 10mb Hard Disc

Online Computer Systems
The Enhanced IBM-PC DISCOVER System

The basic package includes:
- IBM-PC XT (10mb) hard disc system
- One 5 ¼" double sided disk drive
- All cables and interface boards
- Discover Software
- 12" Sony Profeel color monitor
- Graphics printer and printer stand
- BASIC Interpreter
- Pioneer LD-V1000 Videodisc player (or equivalent)
- CP/M-86

Complete System: $10,000.00

Options
- Touch panel
- Graphics overlay

Superior Training Systems
IBM PC Interactive Video System

This system is designed to be used with an IBM-PC with 128K, two disk drives, color monitor, and a video player. The $2,400 package includes the Insight 2000 Authoring System. Packages complete with fully wired Learning Center cabinet and peripherals are available.

Features
- Video Controller Interface box with cables for a compatible video player.
- INSIGHT PC Courseware Authoring System with both Authoring and Lesson diskettes.
- Detailed and Quick Start Installation and Courseware Authoring Manuals.
- Videotape (VHS or Beta) tutorial on effective courseware authoring techniques.
- To be used with the following disc players: Pioneer VP1000, 8210, Sony LDP-1000
- To be used with the following tape players: Panasonic 8200 VTR, Sony Beta, U-Matic VTR's

Prices:
$2,080.00 for complete system for disc or tape
$2,400.00 for complete system for disc *and* tape
$990.00 for interface only for disc or tape
$1,200.00 for interface only for disc *and* tape

Visage, Inc.
V:Station 2000 Interactive Videodisc System Series

Features
- Complete system includes IBM-PC, V:Link hardware interface, IBM-compatible color graphics adaptor, and a comprehensive selection of standard and optional software
- Graphic overlay including 80-column text
- RGB output
- Control of most videodisc players
- Membrane touch screen (except V:Station 2001 and 2004)
- Touch screen resolution: Med-Res 256x256, Hi-Res 1024x1024
- Full range of software support
- System will run standard IBM-PC programs
- One monitor system
- 256K or 512K of dynamic RAM available
- 10 meg Winchester hard disks available

Prices:
$5,995.00 for 2001 Floppy diskette-based system, 256K RAM
$7,695.00 for 2002-A Floppy diskette-based system, Hi-Res touch screen, 256K RAM
$6,895.00 for 2002-B Floppy diskette-based system, Med-Res touch screen, 256K RAM
$9,825.00 for 2003-A Hard disk-based system, Hi-Res touch screen, 256K RAM
$9,125.00 for 2003-B Hard disk-based system, Med-Res touch screen, 256K RAM
$7,385.00 for 2004 Floppy diskette-based system, 512K RAM
$11,650.00 for 2005-A Hard disk-based system, Hi-Res touch screen, 512K RAM
$10,850.00 for 2005-B Hard disk-based system, Med-Res touch screen, 512K RAM

NCR COMPUTER INTERACTIVE VIDEODISC SYSTEMS

NCR Corporation
NCR INTERACTV Interactive Videodisc System

Features
- NCR Personal Computer (MS-DOS 16-bit Operating System)
- High resolution 12-inch color monitor
- 128K RAM
- Two 5 ¼ inch floppy disk drives
- Videodisc Player
- Audio module
- Speakers
- Detachable low profile keyboard
- Overlay of text and graphics
- Supports GW BASIC, PILOT, C, PASCAL, FORTRAN, RM COBOL
- Videodisc driver and touch screen driver included

Complete System: $8,730.00

Options
- Touch screen
- 512K memory
- 30MB external storage
- NTSC or RGB outputs
- Variety of PC peripherals and options

SONY COMPUTER INTERACTIVE VIDEODISC SYSTEMS

Sony Video
View System 1 Interactive Videodisc System

Features
- LDP-2000 Videodisc Player, SMC-2000 Microcomputer
- Built-in graphic overlay
- Two 3.5 inch micro floppy disk drives
- Runs MS-DOS software
- 16 character colors, 256 graphic colors from a palette of 4096
- RS232C communications port, IEEE-488 port optional
- Supports lightpen and mouse
- High-quality graphics resolution, 640 x 400
- Integrated system minimizes the number of cables and maximizes the functionality of both the computer and videodisc player

Complete System: $7,150.00

Options
Sony offers a wide range of software and peripheral hardware to support the system, listed are only a few of the popular options;
- Dual RS232C interface board ($185.00)
- IEEE-488/RS232C board ($510.00)
- Ram Expansion Board (to 526K)($510.00)
- Mouse ($200.00)
- Light Pen ($175.00)
- Video/Graphics Library (Pascal or C) ($195.00)
- Lumena Graphics Creation Program ($545.00)
- Menu-driven font editor (50 included) ($295.00)

Sony Video
View System 2 Interactive Videodisc System

Features
- LDP-2000 Videodisc Player, SMC-2000 Microcomputer
- Still frame audio included
- Reads data from the videodisc
- Built-in graphic overlay
- 3.5 inch micro floppy disk drives optional
- Runs MS-DOS software
- 16 character colors, 256 graphic colors from a palette of 4096
- RS232C and IEEE-488 ports
- Supports lightpen and mouse
- High-quality graphics resolution, 640x400
- Integrated system minimizes the number of cables and maximizes the functionality of both the computer and videodisc player

Complete System: $8,260.00

Options
Sony offers a wide range of software and peripheral hardware to support the system, listed are only a few of the popular options;
- Dual RS232C interface board ($185.00)
- 3.5inch micro floppy disk drive ($415.00)
- Ram Expansion Board (to 526K)($510.00)
- Mouse ($200.00)
- Light Pen ($175.00)
- Video/Graphics Library (Pascal or C)($195.00)
- Lumena Graphics Creation Program ($545.00)
- Menu-driven font editor (50 included)($295.00)

WICAT INTERACTIVE VIDEODISC SYSTEMS

WICAT Systems
System 1250

This system is the least expensive of the WICAT line. The System 1250 offers a stand-alone terminal that can be networked. The price listed is for the workstation only. The authoring software and networking hardware must be purchased separately. For detailed information on this system or any of the larger systems, contact WICAT at the address listed.

Features
- MC68000, 12.5MHz processor (approx. 1.25 million instructions per second)
- 16-bit processor (32 bit data operations)
- Memory management
- IEEE 796 (extended Multibus) Bus architecture
- 1 Mbyte of RAM (expandable to 5 Mbytes)
- 2 programmable interval timers
- Intelligent disk controller
- 8-16 RS-232C serial interfaces (50 to 9600 baud)
- 1 or 2 16-bit general-purpose parallel interface
- ETHERNET PCB for networking
- Can use the WISE authoring system for courseware development

Price: $12,000.00

WICAT Systems
System 1255

The System 1255 offers a stand-alone terminal that can be networked. The price listed is for the workstation only. The authoring software and networking hardware must be purchased separately. For detailed information on this system or any of the larger systems, contact WICAT at the address listed.

Features
- MC68000, 12.5MHz processor(approx. 1.25 million instructions per second)
- 16-bit processor (32 bit data operations)
- Memory management
- IEEE 796 (extended Multibus) Bus architecture
- 1 Mbyte of RAM (expandable to 5 Mbytes)
- 2 programmable interval timers
- Intelligent disk controller
- 8-24 RS-232C serial interfaces (50 to 9600 baud)
- 1 or 3 16-bit general-purpose parallel interface
- ETHERNET PCB for networking
- Can use the WISE authoring system for courseware development

Price: $25,000.00

APPENDIX F. DIRECTORY OF VIDEODISC SOFTWARE

AERONAUTICS

National Air and Space Museum Archive—Disc One
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc documents the history of aircraft from the early flying machines up to the aircraft of the 1940's. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

National Air and Space Museum Archive—Disc Two
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc documents the history of aircraft from the 1940's up to the aircraft of the present. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

National Air and Space Museum Archive—Disc Three
This disc is an archival collection of close to 100,000 still images of airplanes from the museum's holdings. The disc comes with an index that identifies the aircraft by manufacturer.

Interactive CAV
Software: None available
Smithsonian Institution (NASM)
Price: $44.95

ART

National Gallery of Art
This disc was produced as "the first catalogue of art from a major museum to be made available to the public on videodisc." The disc is divided into two sections. The first section is a linear program that includes the story of the museum's beginnings and development including rare photographs and historic film footage. The second section of the disc is an interactive catalogue of 1,645 still frames of painting, sculptures, drawings, and prints from the Gallery. Each image is followed by a still frame of text identifying the artist and work. Following the catalog is a comprehensive tour through the collection narrated by the director of the Gallery, J. Carter Brown. The collection spans seven centuries of art.

Interactive CAV
Software: None available
LDC America, Catalog #VPI-NGA-84
Price: $95.00

Philip Pearlstein Draws the Artist's Model
This disc is the first disc in a series called Genius In Our Time. Each one of the series projects will cover the work of some creative, living person whose work will live long after that person will. Each one will be a completely documented disc of that artist, architect, dancer, conductor, etc. This disc showcases the teaching, philosophy and art of Mr. Perlstein, considered to be one of America's most prestigious realist painters. The paintings of the artist are cataloged on the disc along with video footage of Perlstein in his studio, his classes and at the opening of one of his shows. Interactivity is provided by several exercises specifically designed by Perlstein for artists as well as theories and instruction taught with the computer graphics. In doing this, the artist creates five new works.

Interactive CAV
Software: None available
Interactive Media Corporation
Price: $49.95

Profiles in American Art
A series of twelve half-hour discs documenting the ideas and works of some of today's American artists, painters and sculptors. The programs penetrate the lives and minds of these painters and sculptors to help the viewer understand that elusive mix of talent, skill and magic we call art. The following individuals

have been included in this series hosted by Alexander Scourby:

Eric Sloan, painter & writer
Donald Teague, watercolorist
John Clymer, painter
Edward Fraughton, sculptor
Glenna Goodacre, painter
William Whitaker, painter
Conrad Schwiering, painter
Sergei Bongart, painter & poet
George Carlson, sculptor
Wilson Hurley, painter
John Stobart, painter
Bob Kuhn, painter

The discs are also available in a special Collector's Edition with a special case and a signed and numbered disc. A limit of 100 sets are available.

Interactive CAV
Software: None available
American Technology Resources
Prices:
$95.00 per disc, $995.00 for the set of twelve
Collector's Edition: $395.00 per disc, $3995.00 for set

Vincent Van Gogh—A Portrait in Two Parts
The program on the disc is in two parts. The first part on side one is an overview of the life of Van Gogh through his paintings and several letters to his brother Theo. Over 200 of his works are shown on this side in catalogues that group the works by period. Side two is a one-man play starring Leonard Nimoy as Theo, Vincent's brother. The contents is broken down as follows:

Side 1—Van Gogh Revisited (hosted by Leonard Nimoy)
Chapter 1. Overview, Dutch Period.
Chapter 2. Catalogue: Major Works of Dutch Period.
Chapter 3. Overview, Paris Period.
Chapter 4. Catalogue: Major Works of Paris Period.
Chapter 5. Overview, Arles Period.
Chapter 6. Catalogue: Major Works of Arles Period.
Chapter 7. Overview, Saint Remy Period.
Chapter 8. Catalogue: Major Works of Saint Remy Period.
Chapter 9. Overview, Auvers Period.
Chapter 10. Catalogue: Major Works of Auvers Period.
Chapter 11. Painting Techniques: Reference Series.
Chapter 12. Brabant in Vincent's Time: Reference Series.
Chapter 13. Paris and Impressionism: Reference Series.
Chapter 14. Provence: The Land & People: Reference Series.
Chapter 15. Auvers, the Artists' Village: Reference Series.
Chapter 16. Summary
Chapter 17. Credits
Side 2—Vincent. The Play.
This is a two act one-man show starring Leonard Nimoy as Theo Van Gogh, Vincent's brother.

Interactive CAV
Software: None available
LDC America
Price: $49.95

BUSINESS MANAGEMENT

The Business Disc—How To Start and Run a Small Business
The Business Disc is a sophisticated simulation which leads the user through the steps of planning and managing a small business.

The Business Disc:
- Provides business experience without risk of capital
- Can be used to improve or expand an existing business
- Accommodates users' needs and interests
- Allows users to progress at their own pace
- Permits review of segments already seen
- Handles record keeping in detail
- Uses live action, drama, animation, graphs and slides
- Presents qualified professional advice
- Performs complex spreadsheet calculations

Part One: The Planning Phase
This section simulates six months of meetings with professional advisors, discussions with other business owners, decision making and securing financing.

Part Two: The First Year In Business
This section simulates the first twelve months of operation. Decisions may have to be made about such matters as: a rent increase, late supply deliveries, parking lot pothole repairs, employee issues, and many more possibilities.

Hardware Requirements:
Pioneer LD-V6000 or Pioneer LD-V6010
IBM-PC or compatible, 256K, 2 DS/DD Drives, RS-232 port
VAL Microkey overlay card 1150 or 1300 (Video Associates Labs)

Sony PVM or KX series monitor, or Zenith ZVM-135
Standard dot matrix printer (optional)

Programmed CAV
Software: For IBM-PC (provided)
Maryland Center for Public Broadcasting
Price: $1,995.00 (Two videodiscs, four floppy disks, manual and reproducible forms)

Decision Point: A Living Case Study
This is an instructional tool that creates a rich and engaging business-management environment providing the user with the opportunity to explore his or her decision-making techniques and capabilities. The user becomes the Associate Vice President of sales in a fictional company producing high-precision, machinery-making equipment. Upon entering, the company is experiencing problems. Despite market research predicting a boom market, and despite successful past performance, sales projections are not being met. There is stress throughout the organization and the user must turn things around.

The ten major decision points involve:
- Incentive/Commission Structure
- Discount Approval Policy
- Technical Training Issues
- Workflow Revision
- Credit Policy
- Managerial Effectiveness Promotion
- Information/Report Distribution
- Increasing Staff or Improving Time Management
- Performance Measurement/Quotas

Hardware Requirements:
DEC IVIS System

Programmed CAV
Software: For DEC Pro 350
Digital Equipment Corporation
Price: $2,200.00

Fair Employment Practice
This course offers a new approach to management and supervisory training programs. This course teaches managers and supervisors how to use the principles of good management to find, hire, and place productive employees. Promote, transfer and supervise them. Handle discipline and discharge as well as prevent sexual harassment all within the bounds of EEOC regulations.

The disc is broken into four 15-minute units: Recruitment, Selection and Placement; Promotion and Transfer; Discipline and Discharge; Preventing Sexual Harassment. During the course of the program the videodisc poses multiple-choice questions which must be answered correctly before the program proceeds.

This videodisc requires the Pioneer PR-7820 or LD-V6000 player for interactive functions. The handset is needed for user input.

Programmed CAV
Software: Level two programming on the disc
BNA Communications Inc.
Price: $1,500.00 one year rental.

An Introduction to Marketing
Understanding the role of marketing is fundamental to effective management by staff outside the marketing function. This course provides an introduction to the concepts of marketing to those who would benefit from familiarity with the marketing process. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

Module 1—Factors Influencing Why and How People Buy
- The difference between market-led and product-led companies
- Definitions of marketing
- Environmental changes influencing buyer's needs
- Analysis of buying behavior in terms of needs
- A buying cycle model
- External and internal buying stimuli
- Rational vs. irrational bases for buying
- Individual roles within a buying cycle
- Relating the selling cycle to the buying cycle

Module 2—Market Research, Forecasting and Planning
- Market segmentation and sectorization/variables used
- Purpose and types of market research
- Stages of market research
- Methods of gathering information
- Methods of carrying out surveys
- Reasons for market forecasting
- Purposes of market planning
- SWOT analysis
- Stages of market planning

Module 3—Getting the Market Mix Right
- The four P's of the marketing mix
- Tangible and intangible attributes of a product
- Reasons for adjusting the product mix

- The product life cycle
- Determinants of the market price
- Stages of price setting
- Objectives of price setting
- Purposes and methods of promotion
- Criteria for deciding on the promotion budget
- Advertising methods
- Direct and indirect methods of distribution
- Inter-relationship between the four P's
- A cybernetic model of marketing/monitoring, revising and controlling

Necessary Hardware:
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank, Inc.
Price: $1,995.00 per module

The Name Game: A Course on Memory Skills
The Name Game is designed to develop ones ability to remember names and faces. This program is presented as a highly interactive real-time simulation that will draw the user into the action. The assignment is to attend a party at the US Embassy in France, where a deadly plot is unraveling. The key to solving the plot is remembering the names and faces of the people that are introduced.

Necessary Hardware:
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank, Inc.
Price: $2,595.00

Versatile Organization
This is a course that is designed to teach how to increase productivity in an organization's management, sales staff and administrative staff. The Versatile Organization is comprised of six distinct components, each of which stands on its own as a complete course. These components are:

1—The Versatile Organization
This component addresses the issue of overall organization versatility and how each individual in a company has a stake in and contributes to that. It is in fact, a cultural intervention designed to strengthen an organization at every level.

2—Managing
3—Selling
4—Supervising
5—Servicing Customers
6—Relating Professionally
The other five components facilitate applications of this principle in each of their respective areas. Of particular is Relating Professionally, which addresses a problem that is especially prominent in the burgeoning high-tech field that is, empowering people with extremely specialized skills to better relate to each other professionally more efficiently and with less stress.

The course contains a common core of three generic modules with the beginning and ending modules tailored to the specific concerns of each discipline; Selling, Managing, and Administration. Each discipline offers between 8 to 12 hours of instruction.
Hardware requirements IBM/Online; Sony View; AT&T; InfoWindow; NCR.

Programmed CAV
Software: Provided
Wilson Learning Corporation
Prices:
$10,000 for the first discipline
$5,000 for each additional discipline

CAREER COUNSELING

COLLEGE U.S.A.
This series of discs offer college-bound students a close-up view of campus life at colleges across the country. Special segments focus on career opportunities in specific fields. Career videos include:

Agriculture
This six-minute video explores the diversified, high tech and scientific nature of agriculture today. It is pointed out that 90 percent of jobs in agriculture today are off the farm in scientific research, mathematics, computing, engineering, marketing, manufacturing and a host of other specialties.

Architecture
This six-minute video encourages students to explore the challenges, rewards and practical aspects of the academic preparation for and working as an architect. This segment was sponsored by the National Architectural Accrediting Board, American Institute of Architects, American Institute of Architectural Students, Association of Collegiate Schools of Architecture, National Council of Architectural Registra-

tion Boards and the National Institute of Architectural Education.

Engineering
The seven-minute video explores the highly technological and innovative nature of engineering today including applications in medicine, fiber optics, computers and more. This segment was co-produced by the Institute of Electrical and Electronics Engineering.

High Technology
This two-minute video stresses options in chemistry, biology, computer programming and electronic engineering as well as environmental and civil engineering. This segment was produced by the U.S. Army Reserve Officer Training Corps.

Nursing
This two-minute video encourages students to consider the specialized training and financial assistance available while earning a bachelor's degree, as well as career opportunities in the Army or National Guard as nurse/officer after graduation. This segment was produced by the U.S. Army Reserve Officer Training Corps.

ROTC Scholarships
This video focuses entirely on the financial aid aspects of the Army ROTC and outlines the details of student funding for tuition, books, fees and a monthly subsistence allowance in addition to a commission as an officer in the Army or National Guard after graduation. This segment was produced by the U.S. Army Reserve Officer Training Corps.

Teaching
This five-minute video features Ed Asner and Alex Haley recalling the impact that teachers had on their lives and high school graduates discussing what made teachers stand out. The video looks at the changes in the teaching profession and explores teaching as an attractive career choice, especially in the fields of computers, science and mathematics. This segment was produced by the American Federation of Teachers.

In the college segments, students will experience the unique personality of each college campus as the camera leads them on a tour of classrooms, labs, libraries and student unions. They'll hear insightful comments from students, professors and administrators and find answers to their key questions about colleges and careers. In addition to campus tours, each college profile includes up-to-date information about Admission Requirements, Tuition, Majors Offered, Class Sizes, Ratios of Students to Faculty, and Financial Aid.

The College U.S.A. system includes:
- A laser videodisc system
- An unlimited supply of postage-paid student response cards that make it easy to request information from any college in the U.S.A.
- Posters promoting College U.S.A. to the students
- Free hardware maintenance, with 48 hour replacement

Interactive CAV
Software: None available
Info-Disc Corporation
Price: $375.00 per year

DISCOVER for Microcomputers
This program has been created as a service of the American College Testing Program (ACT). The Discover program furnishes occupational and educational information, as well as the most comprehensive guidance component available with a computer-based occupational information resource. Students can complete the entire program in about two hours, or they can use it for a much shorter period of time, concentrating on areas of the program that supply specific information to satisfy their current needs. Discover can store information from a student's use of a program.

This means that, over a period of time, individuals can review and update their self-information, preferred colleges, and occupations of interest. The four major components of the program include:

Learning About Yourself
This area contains three assessment tools to help a student focus on the future. Included are the 90-item UNIACT Interest Inventory, a Self-Rating of Abilities and a Values Inventory.

Searching For Occupations
This component will take the information from the last section, or will accept input from the following interest inventories; Stron-Campbell Interest Inventory, Ohio Vocational Interest Survey I or II, or Kuder Form E. Aptitude test scores are accepted from Career Planning Program, Differential Aptitude Tests, General Aptitude Test Battery, and Armed Services Vocational Aptitude Battery.

Learning About Occupations
The student may either browse the list of appropriate occupations or receive detailed information on occupations of interest. More than 12,000 occupations are listed under 23 job families and 12 map regions.

Educational Information
This section contains information on about 1,800 four-year colleges, 1,500 two-year colleges, and 1,000

graduate schools that are updated annually. The student may search the schools by any number of criteria including majors available, cost range, size, geographic location, minority representation, and sex ratio to name a few.

Necessary Hardware
Apple II or IIe computer (128K), two floppy disk drives, one 10 Mb CORVUS hard disk (Omni Drive), parallel printer, and a Pioneer LD-V6000 videodisc player, or IBM-PC (not AT) computer (128K), one floppy disk drive, RGB monitor, CGA card, 10 Mb hard disk, parallel printer, and a LD-V6000 videodisc player.

Programmed CAV
Software: Provided
DISCOVER Center
Price: $1,950.00

Pathfinder—A Career Decision Process
This is a videodisc program that interprets the results of the Strong-Campbell Interest Inventory and then guides participants through a four-step career decision-making process.

Step one helps the user understand how patterns of interest can form the foundation of a satisfying career.

Step two helps the user identify a wide variety of specific occupations that could match his or her interests. The Strong-Campbell's 106 occupational scales are expanded with 750 related occupations, with easy reference to an additional 20,000 occupations in the Dictionary of Occupational Titles.

Step three allows the user to evaluate and select the most realistic occupational choices, based on such "real world" criteria as educational requirements, actual job duties, and long-term job potential.

Step Four motivates and assists the user in developing the action steps needed to pursue his or her career plan.

Print materials include a 32-page Career Guide for the user, and Instructional Manual for the counselor and a Reference Library containing the Dictionary of Occupational Titles, the Occupational Outlook Handbook, and the User's Guide to the SVIB-SCII.

Pioneer LD-V6000 videodisc player is needed for the level 2 program on the disc.

Programmed CAV
Software: level 2 encoded on disc Interactive Video Systems, Inc.
Price: $2,000.00 first year subscription, $1,500.00 subsequent years subscription
Extra Career Guides, $3.00 (quantity discounts)

World of Work
The U.S. Department of Education contracted for the production of two prime time, 60-minute television programs entitled "Is Technology Stealing Your Job" and "Where Will You Work Tomorrow?"

Two more programs were produced as an interactive disc with the titles "Guide to Tomorrow's Jobs" and "The Hidden Job and How to Find It." The programs are closed captioned for the hearing impaired.

The target audiences for the lessons consists of decision-makers, high school counselors, students seeking information about high-technology careers, and workers who want to make mid-career changes and need to learn new skills.

The programs provide a timely overview of the following concepts:
- How the world of work has changed and its effect on both skilled and unskilled labor.
- Impacts on the job market caused by new, high-technology, especially in computers, communications technology, information sciences, and robotics on the job market.
- The need for solid basic skills (reading, written and oral communications, and mathematics) as a continuing prerequisite for a meaningful job and career advancement.
- The role of technical, trade and continuing education.

The third and fourth titles have programming available and require a Sony LDP videodisc player and a Sony SMC-70 personal computer.

Interactive/(Third & Fourth Titles are Programmed)
Software: level 1 and 3 GPN
Price: $100.00 per set of three discs

COMPUTER SCIENCE

Computer Literacy—Disc 1
This is a two disc computer literacy course with 12 to 15 hours of instruction. The course can be used with the IBM-PC or Apple computer systems. Online testing and record keeping are available. Software can be altered with the Disc Writer authoring language. An online index and glossary, as well as test questions are provided.

Side 1
Hardware
Videodisc operating instructions
Microcomputer overview
History of computers
Primary and secondary storage
Printers
Common peripherals

Input devices
Processing

Side 2
Software
Introduction to software
Applications programs
Word processing
Electronic spreadsheet
Database management
Business graphics
Advanced topics
*Programming
*Operating systems
*Boolean logic

Programmed CAV
Software: written for IBM or Apple J.A.M., Inc.
Price: $2,995.00 for set of 2 discs, software, & manual

Computer Literacy—Disc 2
This is a two disc computer literacy course with 12 to 15 hours of instruction. The course can be used with the IBM-PC or Apple computer systems. Online testing and record keeping are available. Software can be altered with the Disc Writer authoring language. An online index and glossary, as well as test questions are provided.

Side 3
Telecommunications
Introduction to telecommunications
Modems
Telecommunications software
Local area networks
Consumer information databases
Videodisc/Videotext

Side 4
New Technologies
Industrial robotics
CAD/CAM
Optical storage
Integrated software

Programmed CAV
Software: written for IBM or Apple J.A.M., Inc.
Price: $2,995.00 for set of 2 discs, software, & manual

dBASE II
A three to six hour course in the fundamentals of data base management using dBase II. Content includes creating and changing files, addition and deletion of records, sorting, renaming and copying files, numerous math computations, and printing reports.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

dBASE III
A four to six hour course on using dBASE III. Content includes creating database files, adding and changing information, performing time saving searches, retrievals and arithmetic calculations, extracting selected data and printing reports.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Displaywrite III
A six to eight hour course on the techniques of word processing and how they may be applied through IBM's DisplayWrite word processing program. Content includes DisplayWrite III's structure, creating a document, revising and printing a document, creating a longer document, advanced editing techniques, formatting text, verifying spelling, displaying a directory, and using document utilities.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

DL/1 Programming
A program which introduces the concept of hierarchical data base structure and the rules by which the DL/1 data base is accessed. the major components of the DL/1 programming environment are examined, including the DBD, PSB, PCB, SSA, and the EN-

TRY and CALL statements. The course also details the configuration of a DL/1 application program for the purpose of accessing a data base sequentially and directly. The following nine units are covered:

1—The Data Base Structure
2—Navigating the Hierarchy
3—LD/1 Components and Program Construction
4—Sequential Access
5—Direct Access
6—Boolean Logic and Command Codes
7—The Modification Function Codes
8—Path Calls
9—PCB Components and Advanced Processing Techniques

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

IMS/VS Data Communications Programming

This program examines the basic concepts of IMS-DC structure and functions, along with IMS terminology, effective on-line development, and such extended features as conversational processing.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

IMS Physical Design

This is an example-driven discussion of how best to organize data into an IMS data base which optimizes both function and performance.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Introduction to Data Communications Networks

This is an integrated series of modules providing an in-depth introduction to the techniques of modern data communications. The modules show realistic, everyday examples of data communications usage appropriate for both beginning and advanced students. Each module package includes; one videodisc, one lesson diskette, course administrator's guide, and student handouts. The modules include:

1—Basic Elements in Data Communications
2—Hardware and Software Components in Data Communications Systems
3—Binary Numbering System and Interchange Codes
4—Data Transmission Concepts and Telephone Lines
5—DTE-DCE Interface and RS-232-C
6—Basic Concepts in Data Link Control
7—Start-Stop Data Link Control

Necessary Hardware
IBM-PC computer, Pioneer LD-V1000 videodisc player, Visual Database Systems videoswitch, or the Sony View System.

Programmed CAV
Software: Provided TCT Technical Training, Inc.
Price: $5,900.00 for complete course or $950.00 per module

Introduction to the IBM-PC

Two to four hours of fundamentals on the IBM-PC and PC compatibles. Content includes internal and external operations, keys and function keys, formatting and copying diskettes, the operating system, and files and file structure.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Logical Data Base Design

This program is an example-driven discussion of how best to organize data into an optimally structured Logical Data Model. Using relational concepts and techniques within a structured methodology, the course covers the major phases of the design. These phases are:

- Data Analysis
- Data Normalization
- Construction of the Conceptual Data Model

- Mapping of the Conceptual Data Model
  Hierarchical
  Network
  Inverted File
  Relational

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Lotus 1-2-3
Eight to twelve hours of spreadsheet fundamentals. Content includes startup, spreadsheet setup, data entry and edits, mathematical computations, and macros.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

MS-DOS/PC-DOS
Six to eight hours of the basics in MS-DOS/PC-DOS. Content includes basic commands, hierarchical directories, batch files, and advanced operating techniques.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Multimate
A six to eight hour course in the fundamentals of word processing using MultiMate. Content includes startup, entry, edit, save and print options, rearranging text, form letters, math computations, and spelling checks.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Multiplan
Eight to twelve hours of the fundamentals of spreadsheet analysis. The course allows the user to practice creating spreadsheets for cash flow and income analysis. Content includes startup, data entry and edits, mathematical computations using formulas, numbering worksheets and printing.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

MVS/XA: Concepts and Facilities
This disc presents the theoretical foundation of the MVS/XA operating system as well as an in-depth examination of the facilities available through MVS/XA.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: Production JCL
Examined are the advanced JCL techniques used to perform scheduled work in a production environment. It introduces the techniques used to code and invoke cataloged procedures and explains how to alter parameters on EXEC and DD statements in cataloged procedures. The course describes the techniques used to refine output and improve job control, defines CVOL's and VSAM catalogs, and describes the use of Generation Data Groups. The last unit identifies common JCL errors and describes how to resolve them.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: TSO/E
This is a four-unit course that covers the TSO/E facilities needed to develop programs interactively. The course presents the concepts of TSO/E and an overview of its commands and subcommands.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: VSAM and Basic AMS
This course provides a general overview of VSAM with the integrated catalog facility (ICF), and introduces the AMS commands. It defines VSAM data sets and provides instruction on building alternate indexes for VSAM data sets.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

MVS/XA: VSAM Programming
This disc covers the statements necessary to define and access VSAM data sets from a COBOL program.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

PC Mentor—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. Each lesson can take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With PC Mentor, the user learns basic computer concepts such as the input-processing-output cycle, frequently used hardware and software jargon, the function of the operating system and what the cursor is and how to control it.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)–NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Keyboard Concepts and Computer Control—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. Each lesson can take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With Keyboard Concepts and Computer Control, the user learns the numeric keypad, the alphanumeric keypad, the control keys and the function keys. The user also composes and edits text with the PC keyboard.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Disks, Drives and DOS—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. Each lesson can

take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With Disks, Drives and DOS, the user learns how to format, copy and care for diskettes, how to copy files and how to use the disk operating system (DOS). The DOS section teaches functions such as changing disk drives, renaming and erasing files and moving from the DOS level to the BASIC level.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Using Application Programs—The PC Series
This is one part of a four-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc. The course is designed to teach an adult how to use the personal computer.

Each lesson can take from twenty minutes to three hours. The package includes a videodisc and a floppy diskette.

With Using Application Programs, the user learns how to start the PC, how to load and run application programs, how to distinguish between application programs and system programs, simple BASIC commands such as FILES, LOAD, RUN, LIST and SAVE. The user also has an opportunity to try simulations of a word processor, a database management system, a spreadsheet and a graphics program.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($3,960.00 for all four courses)

Sets Interactive Personal Computing Course
This is a 15 unit course in personal computing. A placement test allows a student to enter the course at the appropriate level. A typical unit consists of four activities; Reading the worktext, Working on the interactive system, Practicing at the computer, and Getting instructional support, management, and validation. Each unit is an hour of instruction. The package is available in English or Spanish versions, and includes four laserdiscs, four courseware diskettes, a practice applications diskette, a placement test diskette, a worktext, and an instructor's manual. The course content includes:

Unit 1: Introduction to the Personal Computer System
Unit 2: Input Devices
Unit 3: Output Devices
Unit 4: Memory and Processing
Unit 5: Storage
Unit 6: Disk Operating Systems
Unit 7: DOS Commands
Unit 8: Word Processing
Unit 9: Data Base Management Systems
Unit 10: Spreadsheets
Unit 11: Graphics
Unit 12: Programming in BASIC, Part I
Unit 13: Programming in BASIC, Part II
Unit 14: Computer Communications
Unit 15: Choosing a Personal Computing System

Necessary Hardware
IBM-PC computer, VAL overlay card (modified), Sony LDP-2000 videodisc player; or a Sony View System; or an IBM Infowindow System.

Programmed CAV
Software: Provided Synergistic Educational Technology Systems, Inc.
Price: $3,595.00 (English version) $3,975.00 (Spanish version)

Lotus 1-2-3 Mentor I—The Software Series
This is part one of a three-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. The package includes a videodisc, a user's guide and a floppy diskette.

Lotus 1-2-3 Mentor I introduces the purpose and function of Lotus 1-2-3 via simulation. This course teaches the applications of Lotus 1-2-3, its screen components, the basic menu and command structure. All basic operations of Lotus 1-2-3 are practiced from designing spreadsheets to printing reports.

This course allows users to repeat or skip course sections, request assistance or return to the Main Menu at any point in the course and as often as necessary. Assistance provided the user includes various combinations of audio help, computer text and video instruction.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided Health EduTech, Inc.
Price: $990.00 ($2,970.00 for all three courses)

Lotus 1-2-3 Mentor II—The Software Series
This is part two of a three-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. The package includes a videodisc, a user's guide and a floppy diskette.

Lotus 1-2-3 Mentor II provides active instruction of all common and many advanced spreadsheet commands by asking users to construct spreadsheets, use templates and practice procedures while using the actual Lotus 1-2-3 software. Each section begins with a simulated explanation and interactive assistance is provided.

Upon successful completion of the simulated sections, Lotus 1-2-3 is used to practice copying, moving, erasing, naming and hiding ranges, storing and retrieving data, printing, writing formulas and functions, editing and combining spreadsheets, establishing windows and titles, and many other techniques and commands.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Course software provided. LOTUS 1-2-3 not provided. Health EduTech, Inc.
Price: $990.00 ($2,970.00 for all three courses)

Lotus 1-2-3 Mentor III—The Software Series
This is part three of a three-part Interactive Videodisc Personal Computer Training series by Health EduTech, Inc.. The course is designed to teach an adult how to use the personal computer. The package includes a videodisc, a user's guide and a floppy diskette.

Lotus 1-2-3 Mentor III provides active instruction for Graphing, Data Management, and Programming of Lotus 1-2-3 while using the actual software.

This course utilizes the DATA command to SORT data on a spreadsheet, and the QUERY command to FIND a specific word, phrase or number, and print a report. The GRAPH command is used to convert a spreadsheet to a bar graph, line graph or pie chart.
Users also learn to automate a series of commands by writing a MACRO so the commands can be executed by a single keystroke.

Necessary Hardware
IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified); or
The Sony View System with 512K memory; or
(NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Course software provided. LOTUS 1-2-3 not provided. Health EduTech, Inc.
Price: $990.00 ($2,970.00 for all three courses)

Symphony
A six to eight hour overview of this extremely versatile integrated software package. The lessons lead to

the production of a document utilizing the four integration applications. Side one emphasizes the spreadsheet utility of Symphony and side two looks at its word processing, data base, and graphics functions.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

Thinking: PC'S—Database
This course consists of two videodiscs designed to provide flexible training in the usage and application of microcomputer database software. Particular focus is made on dBase III and Rbase 5000.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Thinking: PC'S—Spreadsheets
Spreadsheets is comprised of two videodiscs, designed to provide personal computer users with a highly flexible training program in spreadsheet usage and application. The course features four viewing modes, each of which provides a different level of information. The course includes substantial simulation of Lotus 1-2-3 and or MULTIPLAN.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $1,000.00

Vision—UNIX Interactive Video Training
A complete course with a curriculum that consists of three courses and thirty-seven individual units. The program takes students from basic UNIX commands to a complete understanding of "C" language. The programs also provide for immediate feedback to monitor each student's progress. Student handbooks are included.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided Interactive Training Systems, Inc.
Price: $703.00

WordPerfect
A six to eight hour course on word processing and how it is applied through this popular and versatile word processing software. Content includes creating a document, revising and printing a document, creating an extended document, paginating and editing, formatting text, verifying spelling and using additional WordPerfect utilities.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

WordStar
Ten to twelve hours in the fundamentals of word processing using WordStar. Content includes installing WordStar, startup, menu structure, entering and editing text, moving blocks, formatting, finding and replacing blocks, reformatting, using special printing effects, and dot commands for special effects.

Necessary Hardware
Comsell Learning Center, Sony View System, or IBM InfoWindow.

Programmed CAV
Software: Provided Comsell, Inc.
Price: $1,995.00

The World of dBASE
The program was written by Wayne Ratliff who invented the dBase language for computers, and Robert Byer who has written several books on the subject of dBase.

Linear CLV
Software—None available
LDC America
Price: $34.95

DANCE—BALLET

Giselle
The Kirov Ballet with Galina Mezentseva and Konstantin Zaklinsky. Viktor Fedotov conducting. (Stereo version.)

LDC America, Catalog No.
Linear CLV
$34.95

Giselle
The Kirov Ballet with Galina Mezentseva and Konstantin Zaklinsky. Viktor Fedotov conducting. This Disc is Digital Sound Encoded.

LDC America, Catalog No.
Linear CLV
$38.95

Don Quixote
The American Ballet Theatre at the Metropolitan Opera House with Mikhail Baryshnikov.

LDC America, Catalog No.
Linear CLV
$34.95

La Fille Mal Gardee
The Royal Ballet at Covent Garden, Frederick Ashton, choreographer. 100 minutes.

LDC America, Catalog No. PA-81-007
Linear CLV
$34.95

Manon
The Royal Ballet at the Royal Opera House, Frederick Ashton, choreographer. January 1982. 112 minutes.

LDC America, Catalog No. PA-83-047
Linear CLV
$34.95

Nutcracker
American Ballet Theatre, with the National Philharmonic conducted by Kenneth Schermerhorn. Mikhail Baryshnikov, Gelsey Kirkland, and Alexander Minz. 79 minutes.

LDC America, Catalog No. PA-82-032
Linear CLV
$34.95

Sleeping Beauty
The Kirov Ballet, Marius Petipa choreographer. Irina Kolpakova and Sergei Berezhnoi. 1982, 164 minutes.

LDC America, Catalog No. PA-83-055
Linear CLV
$39.95

Spartacus
Choreographed by Yuri Grigorovich and conducted by Alygis Zhyuraitis featuring dancers Erek Moukhamedov, Mikhail Gabovich, Natalia Bessmertnova and Maria Bylova.

LDC America, Catalog No.
Linear CLV
$39.95

Swan Lake
The Royal Ballet at Covent Garden, Marius Petipa and Levivanov choreographers. July 28, 1980. Natalia Makarova and Anthony Dowell. 128 minutes

LDC America, Catalog No. PA-82-018
Linear CLV
$39.95

DANCE—BALLET COLLECTIONS

American Ballet Theatre at the Met
This disc includes Les Sylphides, Paquita, Triad, and Sylvia-Pas de Deux.

LDC America, Catalog No.
Linear CLV
$34.95

DANCE—INSTRUCTION

Belly Dancing, You Can Do It
This series of programs instructs you on how to become an accomplished belly dancer. Each lesson is

progressively more difficult and includes reviews of previous lessons. Dual audio capabilities of the laserdisc system are used with this disc. Belly rolls, flutters, and the shimmy are included in the instruction.

Interactive CAV
Software: None available
LDC America, Catalog No. 37-602
Price: $29.95

DANCE—POPULAR

Peter Allen & The Rockettes at Radio City Music Hall
This disc was recorded live at the Radio City Music Hall. 57 minutes, 1981.

LDC America, Catalog No. 74-016
Linear CLV
Price: $24.95

Kids from Fame, Live at the Royal Albert Hall
Featuring Debbie Allen and Gene Anthony Ray, this disc includes We Got The Power..., Life Is A Celebration and Fame. 75 minutes, 1983.

LDC America, Catalog No. ML100205
Linear CLV
Price: $34.95

ECONOMICS

Introduction to Economics
This package is designed to be a seven week self-instruction course in economics geared for 8th grade students through the adult learner. A student manual is included to reinforce concepts and ideas through written exercises while serving as a reference for study and review. Included in the package price are nine Apple II diskettes and teacher manual.

Side One
How to use the Equipment
Pretest
Resources
Wants and Needs
Scarcity
Resource Allocation
Choices: Influences of Values
Choices: Society's Goals
Social Goals & Trade-offs
Decision making: A Process
Making Economic Decisions: A Case Study
Post-test

Side Two
Pretest
Economic Systems
Circular Flow: Household and Business
Circular Flow: Government
Households
Factors of Production
Business Organizations
Government in the Economy Money
Banking
The Federal Reserve
Summary
Post-test

Hardware Requirements
Apple II with 48K, two disk drives, two monitors (computer monitor and TV monitor), & a Pioneer VP-1000 videodisc player or a Pioneer LD-V6000 series player (serial interface card required).

Programmed CAV
Software: Provided for Apple II (nine diskettes)
MECC
Price: $249.00 for videodisc, nine diskettes and support manual for use with the LD-V6000 (No. 5105) $149.00 for videodisc, nine diskettes and support manual for use with the VP-1000 (No. 5101) $ 9.00 for student manual

The Joy of Stocks—Forbes Guide to the Stock Market
This disc offers step-by-step lessons in how to invest wisely in stocks. Topics include evaluating stocks' safety and growth potential and anticipating market shifts. 1984, 104 minutes.

Linear CLV
Software: None available
LDC America, Catalog No. ML100332
Price: $34.95

EDUCATION

Classroom Discipline: A Simulation Approach
This double-sided disc provides an introduction to six heuristic principles of classroom management and their application. The principles are fairness, consistency, firmness, courtesy & dignity, flexibility and humor. Feedback is provided at the end of each scenario with regard to the paths chosen. After the

introduction, the students are asked to deal with the following four problems in classroom management:

- A student comes in late
- A student refuses to pick up some paper
- A student is doing homework for another class
- A class refuses to settle down

In each case, the student must decide on his or her approach to the video situation from a menu of representative choices. Each choice leads to a video outcome and usually an additional series of alternatives and video outcomes.

Required Hardware
Sony LDP-1000A videodisc player

Programmed CAV
Software: Level two encoded on the disc University of Alberta
Price: $250.00

Improving Teacher Effectiveness An Interactive Videodisc Minicourse
This minicourse is designed to be a teacher-training workshop on videodisc. The package provides teachers with self-paced instruction and can serve as the basis for a group workshop. The goal is to make teachers more aware of the basic principles of effective teaching. Among the concepts covered are teaching to the objective, encouraging student participation, and increasing intent to learn. A videodisc, Apple diskette, and support manual are included.

Required Hardware
An Apple IIe computer with two disk drives, a serial interface card and a Pioneer LD-V6000 series videodisc player are required.

Programmed CAV
Software: Provided on Apple IIe diskette MECC
Price: $249.00 (No. 5401)

ELEMENTARY EDUCATION

The First National Kidisc
This disc was nominated for a grammy because of it's originality.

Content includes 26 chapters of instruction for kids of all ages and allows for a high level of interaction.

Chapters include:
1—Choosing Sides
2—Paper Flying Machines
3—The Flag Game
4—Sign Language
5—Terry Teaches the Jig
6—Movie Magic Flip Book
7—Flying
8—The Kidisc Target Game
9—Knot Tying
10—Three Card Monty
11—A Trip to the Zoo
12—Cat's Cradle
13—101 Jokes & Riddles
14—Waterglass Xylophone
15—Pig Latin
16—The Dinosaur Game
17—The Performing Paperclips
18—The Origame Crane
19—Terry Teaches Rock Dancing
20—A Trip to Universal Studios
21—The Secret Code Maker
22—The Kidisc Bar Game
23—The Amazing Rope Trick
24—Puzzlers
25—Athletes In Motion
26—Closing

Interactive CAV
Software: None available LDC America
Price: $19.95

Fun and Games
This is a two sided sequel to the popular Kidisc Instructional games, activities can be as interactive as necessary. The content is listed by chapter below.

Chapters—Side 1
1—Choosing Up Sides
2—Tongue Twister
3—Monster Match
4—Flying Discs
5—Piñata Party
6—Journey of the Circle
7—Hand Shadows
8—Fun With Meadowlark
9—Marbles
10—Discomobile
11—Puppets
12—Tongue Twister
13—Card Shuffles
14—Close Up
15—Stunts
16—Charades
17—Tongue Twister
18—Hopscotch
19—Index, Side 1

Chapters—Side 2
20—Semaphore
21—On the Rise
22—Yo-Yo's
23—Clapping Games
24—Tongue Twister
25—Kites
26—Double Dutch
27—Pictures Worth 1000 Words
28—Juggling
29—Tongue Twister
30—Palmistry
31—Tap Dancing
32—Mission Unite
33—Solitaire
34—Tongue Twister
35—Off to the Races
36—Silly Songs
37—Skelly
38—Jacks
39—Tongue Twister
40—Stick Ball
41—Index, Side 2

Interactive CAV
Software: None available LDC America
Price: $29.95

Villa Alegre (Happy Village)
This videodisc series is the Emmy Award-winning public television show put into an interactive format by the Nebraska Videodisc Design Production group and the U.S. Department of Education. Ten 30 minute programs are contained on 5 discs. The educational content is in the form of entertaining situations, stories, games, music, dances and visual techniques. For students ages 5 to 8.

This series comes with four diskettes for use with a microcomputer. Suggested hardware is as follows;
Disc Player—Magnavision 8010, Pioneer VP 1000 or LD 1100
Microcomputer—Apple II+ (3.3 DOS) or TRS-80 III
Videodisc Interface—
VMI (for Apple computers)
Allen Communications
Disc Master 1000 (for TRS computers)
New Media Graphics

Programmed CAV
Software: Written for TRS-80 III & Apple II+ GPN
Price: $595.00 for 5 disc series, manual & software.

ELEMENTARY EDUCATION—CHILDREN'S FILMS

Alice In Wonderland
The Animated Disney version of the Lewis Carroll story. 1951, 75 minutes.

LDC America, Catalog No. 42036AS
Linear CLV
Price: $34.95

Beauty and the Beast
Susan Sarandon, Klaus Kinski. This version is part of the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6395
Linear CLV
Price: $29.98

The Boy Who Left Home To Find Out About The Shivers
Dana Hill, Christopher Lee, Frank Zappa. This is a program in the Faerie Tale Theatre series about a boy that wants to learn about fear. 1983, closed captions.

LDC America, Catalog No. 6393-80
Linear CLV
Price: $29.98

Dumbo
The Disney animated classic about the elephant with oversized ears. 1951, 63 minutes.

LDC America, Catalog No. 42024AS
Linear CLV
Price: $34.95

Dunder Klumpen
Animated/live-action disc about the 2-foot tall Dunder Klumpen who steals a young girl's dolls and brings them to life because he is lonely. 1979, 85 minutes.

LDC America, Catalog No. VL3012
Linear CLV
Price: $34.95

Fraggle Songs Volume One
This disc features the Muppets singing many of their hit songs. 1983, 51 minutes.

LDC America, Catalog No. 810AS
Linear CLV
Price: $24.95

The Frog Prince
Kermit stars in the Muppet's version of the classic fairy tale. 1971, 50 minutes.

LDC America, Catalog No. 42805AS
Linear CLV
Price: $24.95

Goldilocks And The Three Bears
Tatum O'Neal, Alex Karras, Carole King. This disc, from the Faerie Tale Theatre series, brings the classic fairy tale to life. 1983, closed captions.

LDC America, Catalog No. 6368-80
Linear CLV
Price: $29.98

Gulliver's Travels
This is an animated version of the Jonathan Swift novel about Gulliver and the war between Lilliput and Biefuscu. 1977, 74 minutes.

LDC America, Catalog No. VL2011
Linear CLV
Price: $34.95

Hansel & Gretel
Ricky Schroder, Joan Collins. This disc is in the Faerie Tale Theatre series. 1982, closed captions.

LDC America, Catalog No. 6409-80
Linear CLV
Price: $29.98

Hey, Cinderella
The Muppets are featured with Pat Galloway and Joyce Gordon. Lively songs and Muppet creatures give a new look to the classic tale. 1970, 54 minutes.

LDC America, Catalog No. 42806AS
Linear CLV
Price: $24.95

Jack and the Beanstalk
Dennis Christopher, Jean Stapleton, Elliott Gould. Another disc in the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6369-80
Linear CLV
Price: $29.98

Little Red Riding Hood
Malcolm McDowell, Mary Steenburgen. A disc in the Faerie Tale Theatre series based on the classic tale. 1983, closed captions.

LDC America, Catalog No. 6398-80
Linear CLV
Price: $29.98

The Nightingale
Mick Jagger, Barbara Hershey. This version is part of the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6392
Linear CLV
Price: $29.98

Pinocchio
James Coburn, Carl Reiner. This version is part of the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6390-80
Linear CLV
Price: $29.98

The Princess and the Pea
Liza Minnelli, Tom Conti, Beatrice Straight. This is the Faerie Tale Theatre version of the classic tale.

LDC America, Catalog No.
Linear CLV
Price: $29.98

Rapunzel
Shelly Duvall, Jeff Bridges, Gena Rowlands. This is a modernized version of the classic tale by the Faerie Tale Theatre. 1983, closed captions.

LDC America, Catalog No. 6370-80
Linear CLV
Price: $29.98

Rumpelstiltskin
Ned Beatty, Shelly Duvall. This is a feature from the Faerie Tale Theatre. 1984, closed captions.

LDC America, Catalog No. 6391-80
Linear CLV
Price: $29.98

Sleeping Beauty
Christopher Reeve, Bernadette Peters, Beverly D'Angelo. A modern day version of the classic tale by the Faerie Tale Theatre. 1983, closed captions.

LDC America, Catalog No. 6371-80
Linear CLV
Price: $29.98

Sleeping Beauty
This disc is the animated Disney version of the tale of the beautiful princess under a spell of a wicked witch. 75 minutes.

LDC America, Catalog No. 476AS
Linear CLV
Price: $34.95

Snow White and the Seven Dwarfs
Elizabeth McGovern, Vanessa Redgrave, Rex Smith. This is a feature from the Faerie Tale Theatre.

LDC America, Catalog No. 6392
Linear CLV
Price: $29.98

Tale of the Frog Prince
Robin Williams, Teri Garr. This disc is another story in the Faerie Tale Theatre series. 1983.

LDC America, Catalog No. 6372-80
Linear CLV
Price: $29.98

Thumbelina
Carrie Fisher, Burgess Meredith, William Katt. This disc is part of the Faerie Tale Theatre series. 1983, closed captions.

LDC America, Catalog No. 6396
Linear CLV
Price: $29.98

Velveteen Rabbit
This disc is a musical adaptation of the Margery Williams children's fable, starring Marie Osmond.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Winnie The Pooh
This disc is Disney's version of the A.A. Milne classic story of Winnie the Pooh. The voices of Sterling Holloway and Paul Williams are used as Winnie the Pooh and Tigger. 1977, 74 minutes.

LDC America, Catalog No. 25AS
Linear CLV
Price: $34.95

The Wizard of Oz
Aileen Quinn, Lorne Green. Animated version of the classic story of Dorthy's travels through Oz. 1983, 78 minutes.

LDC America, Catalog No. LV2322
Linear CLV
Price: $29.95

FILM STUDIES

The Adventures of Robin Hood
Errol Flynn, Olivia de Havilland, Claude Rains, Basil Rathbone, Alan Hale. Directed by Michael Curtiz. 1938, 102 minutes.

LDC America, Catalog No. 4540-80
Linear CLV
Price: $34.98

African Queen
Humphrey Bogart, Katherine Hepburn, Robert Morley, Peter Bull, Theodore Bikel. Directed by John Huston. 1951, 105 minutes.

LDC America, Catalog No. 2025-80
Linear CLV
Price: $34.95

All The King's Men
Broderick Crawford, Mercedes McCambridge, John Ireland. Directed by Robert Rossen. 1941, 109 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Anatomy of a Murder
Jimmy Stewart, George C. Scott, Lee Remick. Directed by Otto Preminger. 1959, 161 minutes.

LDC America, Catalog No. 30701
Linear CLV
Price: $34.95

Animal Crackers
Groucho, Chico, Harpo and Zeppo Marx, Margaret Dumont, Lilian Roth. Directed by Victor Heerman. 1930, 97 minutes, B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Arsenic and Old Lace
Cary Grant, Raymond Massey, Peter Lorre, Josephine Hull, Jean Adair, Jack Carson. Directed by Frank Capra. 1944, 118 minutes. B&W.

LDC America, Catalog No. 4603-80
Linear CLV
Price: $34.98

The Awful Truth
Cary Grant, Irene Dunne, Ralph Bellamy. Directed by Leo McCarey. 1937, 90 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Ball of Fire
Barbara Stanwyck, Gary Cooper. Directed by Howard Hawks. 1942, 111 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Bank Dick
W.C. Fields, Franklin Pangborn, Shemp Howard, Jack Norton. Directed by Edward Cline. 1940, 73 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.98

Barefoot in the Park
Robert Redford, Jane Fonda, Charles Boyer, Mildred Natwick. Directed by Gene Saks. 1967, 106 minutes.

LDC America, Catalog No. LV-8027
Linear CLV
Price: $29.95

Ben Hur
Charlton Heston, Jack Hawkins, Stephen Boyd, Hugh Griffith, Sam Jaffe, Martha Scott. Directed by William Wyler. 1959, 212 minutes.

LDC America, Catalog No. ML100004
Linear CLV
Price: $39.95

Best Years of our Lives
Frederick March, Harold Russell. Directed by William Wyler. 1946, 182 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $39.95

The Big Sleep
Humphrey Bogart, Lauren Bacall, Martha Vickers, Elisha Cook Jr., Dorothy Malone. Directed by Howard Hawks. 1946, 114 minutes. B&W.

LDC America, Catalog No. 4532-80
Linear CLV
Price: $34.98

The Birds
Rod Taylor, Tippi Hedren, Jessica Tandy, Suzanne Pleshette, Ethel Griffies. Directed by Alfred Hitchcock.

LDC America, Catalog No.
Linear CLV
Price: $35.95

The Black Cat
Boris Karloff, Bela Lugosi. Directed by Edgar G. Ulmer. 1941, 65 minutes. B&W.

LDC America, Catalog No. 40386
Linear CLV
Price: $29.98

Bridge On the River Kwai
William Holden, Alec Guinness, Jack Hawkins, Sessue Hayakawa, James Donald. Directed by David Lean. 1957, 161 minutes.

LDC America, Catalog No. VLD2010
Linear CLV
Price: $34.95

Buck Privates
Bud Abbott , Lou Costello, Lee Bowman, Andrews Sisters, F.D. Roosevelt. 1941, 84 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.98

The Caine Mutiny
Humphrey Bogart, Van Johnson, Robert Johnson, Fred MacMurray, Jose Ferrer. Directed by Edward Dmytryk. 1954, 125 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Casablanca
Humphrey Bogart, Ingrid Bergman, Peter Lorre, Sydney Greenstreet, Paul Henreid, Claude Rains. Directed by Michael Curtiz. Produced by Hal B. Wallis. 1942, 102 minutes, B&W.

LDC America, Catalog No. 4514-80
Linear CLV
Price: $39.98

Cat on a Hot Tin Roof
Elizabeth Taylor, Paul Newman, Burl Ives, Jack Carson. Directed by Richard Brooks. 1958, 108 minutes.

LDC America, Catalog No. ML100060
Linear CLV
Price: $25.95

Citizen Kane
Orson Welles, Joseph Cotton, Everett Sloane, Dorothy Comingore, Ray Collins, Agnes Moorehead. Directed by Orson Wells. 1941, 119 minutes. Includes a visual essay of over 100 photos, many never published before, and a rarely seen 3-minute trailer made by Wells from original footage not contained in the film itself.

Voyager Press, Catalog No.
Interactive CAV
Price: $89.95

Cool Hand Luke
Paul Newman, George Kennedy, J.D. Cannon, Strother Martin, Jo Van Fleet. Directed by Stuart Rosenberg. 1967, 126 minutes.

LDC America, Catalog No. 11037LV
Linear CLV
Price: $39.98

A Day at the Races
The Marx Brothers, Margaret Dumont, Alan Jones, Maureen O'Sullivan. 1937, 109 minutes. B&W.

LDC America, Catalog No. ML100064
Linear CLV
Price: $25.95

Dinner at Eight
Marie Dressler, John Barrymore, Jean Harlow. Directed by George Cukor. 1933, 111 minutes, B&W.

LDC America, Catalog No. ML100533
Linear CLV
Price: $34.95

Dodge City
Errol Flynn, Olivia de Havilland. Directed by Michael Curtiz. 1939, 104 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Dodsworth
Walter Huston, Maria Ouspenskaya, Mary Astor, David Niven, Paul Lukas. Directed by William Wyler. 1936, 101 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Dr. Strangelove
Peter Sellers, Sterling Hayden, George C. Scott, James Earl Jones, Keenan Wynn, Slim Pickens. Directed by Stanley Kubrick. 1964, 93 minutes. B&W.

LDC America, Catalog No. VLD3134
Linear CLV
Price: $29.95

Dr. Zhivago
Geraldine Chaplin, Julie Christie, Omar Sharif, Rod Steiger, Alec Guinness, Tom Courtenay. Directed by David Lean. 1965, 176 minutes.

LDC America, Catalog No. ML100003
Linear CLV
Price: $39.95

Duck Soup
The Marx brothers. Side 2 is in the CAV format with the original theatrical trailer following the movie. 1933, 70 minutes, B&W.

LDC America, Catalog No.
Linear CLV, Side 1
Interactive CAV, Side 2
Price: $29.98

East of Eden
James Dean, Richard Davalos, Julie Harris, Raymond Massey, Jo Van Fleet, Albert Dekker, Burl Ives. Directed by Elia Kazan. 1955, 115 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Easy Rider
Peter Fonda, Dennis Hopper, Jack Nicholson, Karen Black. Directed by Dennis Hopper. 1969, 88 minutes.

LDC America, Catalog No. VLD3140
Linear CLV
Price: $29.95

Exodus
Paul Newman, Eva Marie Saint, Peter Lawford, Lee J. Cobb, John Derek. Directed by Otto Preminger. 1960, 213 minutes.

LDC America, Catalog No.
Linear CLV
Price: $39.98

Flight of the Phoenix
James Stewart, Richard Attenborough, Dan Duryea, Ernest Borgnine, George Kennedy. Directed by Robert Aldrich. 1965, 149 minutes.

LDC America, Catalog No.
Linear CLV
Price: $39.98

Flying Leathernecks
John Wayne, Robert Ryan. Directed by Nicholas Ray. 1951, 102 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Fort Apache
Henry Fonda, John Wayne, Shirley Temple, John Agar, Anna Lee, Ward Bond, Victor McLaglen. Directed by John Ford. 1948, 127 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $26.95

Frankenstein
Boris Karloff, Colin Clive, Mae Clarke, John Boles, Dwight Frye, Edward van Sloan, Lionel Belmore. Directed by James Whale. 1931, 71 minutes, B&W.

LDC America, Catalog No. 23002
Linear CLV
Price: $29.98

French Connection
Gene Hackman, Fernando Rey, Roy Scheider, Tony LoBianco, Marcel Bozzuffi. Directed by William Friedkin. 1971, 104 minutes.

LDC America, Catalog No. 1009-80
Linear CLV
Price: $29.98

Funny Face
Audrey Hepburn, Fred Astaire, Kay Thompson. Directed by Stanley Donnen. 1956, 103 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Gaslight
Ingrid Bergman, Charles Boyer, Joseph Cotton, Angela Lansbury. Directed by George Cukor. 1944, 114 minutes. B&W.

LDC America, Catalog No. ML100473
Linear CLV
Price: $34.95

Gentleman Jim
Errol Flynn, Alexis Smith, Jack Carson. Directed by Raoul Walsh. 1942, 104 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Giant
James Dean, Elizabeth Taylor, Rock Hudson, Carol Baker, Jane Withers, Chill Wills, Mercedes McCambridge, Sal Mineo. Directed by George Stevens. 1956, 197 minutes.

LDC America, Catalog No.
Linear CLV
Price: $39.95

The Glenn Miller Story
Jimmy Stewart, June Allyson, Louis Armstrong, Gene Krupa, Francis Langford, the Modernaires. Directed by Anthony Mann. 1953, 116 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Going My Way
Bing Crosby, Barry Fitzgerald, Rise Stevens, Jean Heather, Frank McHugh. Directed by Leo McCarey. 1944, 126 minutes, B&W.

LDC America, Catalog No. 21017
Linear CLV
Price: $39.98

Gone With The Wind
Vivien Leigh, Clark Gable, Olivia de Havilland, Leslie Howard, Hattie McDaniel and Butterfly McQueen. Directed by Victor Fleming. 1939, 220 minutes.

LDC America, Catalog No.
Linear CLV
Price: $49.95

Goodbye Columbus
Richard Benjamin, Jack Klugman, Ali MacGraw, Nan Martin. Directed by Larry Pierce. 1969.

LDC America, Catalog No. LV6826
Linear CLV
Price: $29.95

The Graduate
Anne Bancroft, Dustin Hoffman, Katharine Ross. Directed by Mike Nichols. 1967, 106 minutes.

LDC America, Catalog No. 4006-80
Linear CLV
Price: $34.98

Grand Hotel
Greta Garbo, John Barrymore, Lionel Barrymore, Joan Crawford, Wallace Beery, Jean Hersholt, Lewis Stone. Directed by Edmund Goulding. 1933, 112 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Greatest Show on Earth
Betty Hutton, Cornel Wilde, Charlton Heston, James Stewart, Dorothy Lamour. Directed by Cecil B. De Mille. 1952, 149 minutes.

LDC America, Catalog No. LV6617
Linear CLV
Price: $35.95

Guess Who's Coming to Dinner
Katherine Hepburn, Spencer Tracy, Katherine Houghton, Sidney Poitier. Directed by Stanley Kramer. 1967, 112 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Gunga Din
Cary Grant, Douglas Fairbanks, Jr., Victor McLaglen, Joan Fontaine, Sam Jaffee. Directed by George Stevens. 1939, 117 minutes, B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

High Noon
Gary Cooper, Grace Kelly, Lloyd Bridges. Directed by Fred Zinnemann. 1952, 85 minutes.

Voyager Press, Catalog No.
Interactive CAV
Price: $74.95

High Sierra
Humphrey Bogart, Ida Lupino, Cornel Wilde, Arthur Kennedy, Joan Leslie, Alan Curtis. Directed by Raoul Walsh. 1940, 100 minutes. B&W.

LDC America, Catalog No. 4629-80
Linear CLV
Price: $34.98

High Society
Bing Crosby, Frank Sinatra, Grace Kelly, Celeste Holm. Directed by Charles Walters. 1956, 107 minutes.

LDC America, Catalog No. ML100292
Linear CLV
Price: $34.95

How The West Was Won
Henry Fonda, Spencer Tracy John Wayne. Directed by John Ford. 165 minutes, Digital Sound.

LDC America, Catalog No. ML100356
Linear CLV
Price: $49.95

Hud
Paul Newman, Patricia Neal, Melvyn Douglas, Brandon De Wilde. Directed by Martin Ritt. 1962, 112 minutes, B&W.

LDC America, Catalog No. LV6630
Linear CLV
Price: $29.95

I Married A Witch
Frederic March, Veronica Lake, Susan Hayward. Directed by Rene Clair. 1942, 77 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $35.95

Inherit the Wind
Spencer Tracy, Fredric March, Gene Kelly, Florence Eldridge, Harry Morgan. Directed by Stanley Kramer. 1960, 127 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $39.98

Invasion of the Body Snatchers
Kevin McCarthy, Dana Wynter. Directed by Don Siegal. 1956, 80 minutes.

Voyager Press, Catalog No.
Interactive CAV
Price: $74.95

It Happened One Night
Clark Gable, Claudette Colbert. Directed by Frank Capra. 1934.

LDC America, Catalog No.
Linear CLV
Price: $29.95

It's A Wonderful Life
Jimmy Stewart, Donna Reed, Lionel Barrymore, Beulah Bondi, Henry Travers, Gloria Graham, Ward Bond. Directed by Frank Capra. 1946, 129 minutes.

Voyager Press, Catalog No.
Interactive CAV
Price: $39.95

It's A Wonderful Life
Jimmy Stewart, Donna Reed, Lionel Barrymore, Beulah Bondi, Henry Travers, Gloria Graham, Ward Bond. Directed by Frank Capra. 1946, 129 minutes, colorized version.

LDC America, Catalog No. M25
Linear CLV
Price: $89.95

Jezebel
Bette Davis, Henry Fonda, George Brent, Fay Bainter. Directed by William Wyler. 1939, 103 minutes, B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Joan of Arc
Ingrid Bergman, Jose Ferrer, Gene Lockhart, John Ireland. Directed by Victor Fleming. 1948.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Key Largo
Edward G. Robinson, Humphrey Bogart, Lauren Bacall, Lionel Barrymore, Claire Trevor, Thomas Gomez, Dan Seymour, Monte Blue, Jay Silverheels. Directed by John Houston. 1948, 101 minutes. B&W.

LDC America, Catalog No. 4594-80
Linear CLV
Price: $34.98

Kid From Brooklyn
Danny Kaye, Virginia Mayo, Steve Cochran. Directed by Norman Z. McLeod. 1946, 114 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

King Kong
Fay Wray, Robert Armstrong, Bruce Cabot, Frank Reichter, Sam Hardy. Directed by Merian C.

Cooper. 1933, 101 minutes. Included is a running commentary by Ronald Haver on audio track two and a visual essay on the making of King Kong.

Voyager Press, Catalog No.
Interactive CAV
Price: $74.95

Knock on Any Door
Humphrey Bogart, John Derek, Allene Rogerts, Susan Perry. Directed by Nicholas Ray. 1949, 100 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Lady from Shanghai
Rita Hayworth, Everett Sloane. Directed by Orson Wells. 1948, 87 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

The Lady Vanishes
Margaret Lockwood, Michael Redgrave. Directed by Alfred Hitchcock. 1938.

Voyager Press, Catalog No.
Linear CLV
Price: $39.95

Lawrence of Arabia
Peter O'Toole, Alec Guinness, Anthony Quinn, Omar Sharif, Jack Hawkins, Claude Rains, Anthony Quayle, Arthur Kennedy, Jose Ferrer. Directed by David Lean. 1962, 222 minutes.

LDC America, Catalog No. VLD3250
Linear CLV
Price: $39.95

The Lion in Winter
Peter O'Toole, Katherine Hepburn, Jane Merrow, Timothy Dalton, Anthony Hopkins, Nigel Stock. Directed by Anthony Harvey. 1968, 135 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Little Foxes
Bette Davis, Herbert Marshall, Richard Carlson, Dan Duryea. Directed by William Wyler. 1941, 116 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Little Princess
Shirley Temple, Richard Greene, Anita Louise, Cesar Romero. Directed by Walter Lang. 1939, 93 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Lola Montes
Martine Carol, Peter Ustinov. Directed by Max Ophuls. 1955, 140 minutes. Original wide-screen format with English subtitles.

Voyager Press, Catalog No.
Interactive CAV
Price: $69.95

"M"
Peter Lorre, Georg John. Directed by Fritz Lang. 1931, 118 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

MacBeth
Jon Finch, Francesca Annis. Directed by Roman Polanski. 1971.

LDC America, Catalog No.
Linear CLV
Price: $35.95

The Magnificent Ambersons
Tim Holt, Anne Baxter, Joseph Cotton, Agnes Moorehead. Directed by Orson Welles. 1942, 88 minutes. This version features a commentary on audio track 2, Orson Welles' complete shooting script, the complete storyboards and the entire radio play (in audio) by Welles' Mercury Theatre Group.

Voyager Press, Catalog No.
Interactive CAV
Price: $99.95

Maltese Falcon
Humphrey Bogart, Sydney Greenstreet, Mary Astor, Peter Lorre, Gladys George, Barton MacLane. Directed by John Huston. 1941, 101 minutes, B&W.

LDC America, Catalog No. 4530-80
Linear CLV
Price: $34.98

A Man for all Seasons
Robert Shaw, Paul Scofield, Orson Wells, Wendy Hiller, Susannah York. Directed by Fred Zinnemann. 1966.

LDC America, Catalog No. LVD3332
Linear CLV
Price: $34.95

The Man Who Knew Too Much
James Stewart, Doris Day, Brenda DeBanzie, Carolyn Jones, Bernard Miles, Ralph Truman. Directed by Alfred Hitchcock. 1956, 120 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Marty
Ernest Borgnine, Betsy Blair, Joe De Santis. Directed by Delbert Mann, and written by Paddy Chayefsky. 1955, 91 minutes, B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

M*A*S*H
Donald Sutherland, Elliott Gould, Sally Kellerman, Tom Skerritt, JoAnn Pflug, Robert Duval. Directed by Robert Altman. 1969, 116 minutes.

LDC America, Catalog No. 1038-80
Linear CLV
Price: $39.98

Mr. Smith Goes to Washington
James Stewart, Jean Arthur, Claude Raines, Edward Arnold, Guy Kibbee, Thomas Mitchell, Beulah Bondi, Jack Carson. Directed by Frank Capra. 1939, 120 minutes, B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Moby Dick
Gregory Peck, Richard Basehart, Orson Wells. Directed by John Huston. 1956, 116 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Mutiny on the Bounty
Charles Laughton, Clark Gable, Franchot Tone, Herbert Mundin, Eddie Quillan, Dudley Diggs, Donald Crisp. Directed by Frank Lloyd. 1935, 132 minutes, B&W.

LDC America, Catalog No. ML100450
Linear CLV
Price: $39.95

Ninotchka
Greta Garbo, Melvyn Douglas, Sig Rumann, Alexander Granach, Felix Bressart, Bela Lugosi, Ina Claire, Richard Carle. Directed by Ernst Lubitsch. 1939, 108 minutes, B&W.

LDC America, Catalog No. ML100115
Linear CLV
Price: $34.95

North by Northwest
Cary Grant, Eva Marie-Saint, James Mason, Leo G. Carroll. Directed by Alfred Hitchcock. 1959, 136 minutes.

LDC America, Catalog No. ML100104
Linear CLV
Price: $39.95

Notorious
Cary Grant, Ingrid Bergman, Claude Raines, Louis Calhern, Madame Konstantin. Directed by Alfred Hitchcock. 1946, 103 minutes. B&W.

LDC America, Catalog No. 8011-80
Linear CLV
Price: $29.98

One Flew Over the Cuckoo's Nest
Jack Nicholson, Louise Fletcher, William Redfield, Brad Dourif. Directed by Milos Forman. 1976, 128 minutes.

LDC America, Catalog No.
Linear CLV
Price: $44.95

On The Waterfront
Marlon Brando, Karl Malden, Lee J. Cobb, Rod Steiger, Pat Henning, Eva Marie Saint, Leif Erickson. Directed by Elia Kazan. 1954, 108 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Patton
George C. Scott, Karl Malden, Stephen Young, Michael Strong, Frank Latimore. Directed by Franklin J. Schaffner. 1969, 171 minutes.

LDC America, Catalog No. 1005-80
Linear CLV
Price: $49.98

The Picture of Dorian Gray
Hurd Hatfield, George Sanders, Donna Reed, Angela Lansbury. Directed by Albert Lewin. 1945, 111 minutes, B&W.

LDC America, Catalog No. ML100566
Linear CLV
Price: $34.95

A Place in the Sun
Elizabeth Taylor, Montgomery Clift, Shelly Winters, Keefe Brasselle, Raymond Burr, Anne Revere. Directed by George Stevens. 1951, 128 minutes. B&W.

LDC America, Catalog No. LV5815
Linear CLV
Price: $35.95

The Pride of the Yankees
Gary Cooper, Walter Brennan, Babe Ruth, Theresa Wright. Directed by Sam Wood. 1942, 127 minutes. B&W.

LDC America, Catalog No. 7145-80
Linear CLV
Price: $34.98

The Private Life of Henry VIII
Charles Laughton. Directed by Alexander Korda. 1933, 97 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Producers
Zero Mostel, Gene Wilder, Kenneth Mars, Dick Shawn, Estelle Winwood. Directed by Mel Brooks. 1967, 88 minutes.

LDC America, Catalog No. 4058-80
Linear CLV
Price: $29.98

The Raven
Boris Karloff, Bela Lugosi. Directed by Lew Landers. 1935, 61 minutes. B&W.

LDC America, Catalog No. 40386
Linear CLV
Price: $29.98

Rear Window
James Stewart, Grace Kelly. Directed by Alfred Hitchcock. 1954.

LDC America, Catalog No.
Linear CLV
Price: $29.98

Rebel Without a Cause
James Dean, Natalie Wood, Sal Mineo, Jim Backus, Ann Doran, Corey Allen, Edward Platt, Dennis Hopper, Nick Adams. Directed by Nicholas Ray. 1955, 111 minutes.

LDC America, Catalog No. 1011LV
Linear CLV
Price: $34.98

Roman Holiday
Gregory Peck, Audrey Hepburn, Eddie Albert, Tullio Carminati. Directed by William Wyler. 1953, 118 minutes, B&W.

LDC America, Catalog No. LV6204
Linear CLV
Price: $29.95

Romeo and Juliet
Olivia Hussey, Leonard Whiting, Michael York, Milo O'Shea, John McEnerny, Pat Heywood, Robert Stephens. Directed by Franco Zeffirelli. 1968, 138 minutes.

LDC America, Catalog No. LV6809
Linear CLV
Price: $35.95

Rope
James Stewart, John Dall, Farley Granger. Directed by Alfred Hitchcock. 1948, 81 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.98

Rose Marie
Jeanette MacDonald, Nelson Eddy. Directed by W.S. Van Dyke. 1936, 113 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Samson and Delilah
Hedy Lamarr, Victor Mature, Angela Lansbury, George Sanders, Henry Wilcoxon, Olive Deering, Fay Holden. Directed by Cecil B. de Mille. 1949, 128 minutes.

LDC America, Catalog No. LV6726
Linear CLV
Price: $35.98

San Francisco
Jeanette MacDonald, Clark Gable, Spencer Tracy. Directed by W.S. Van Dyke. 1935, 116 minutes, B&W.

LDC America, Catalog No. ML100474
Linear CLV
Price: $34.95

Sherlock Holmes and the Secret Weapon
Basil Rathbone, Nigel Bruce. 1942, B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

She Wore A Yellow Ribbon
John Wayne. Directed by John Ford. 1949.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Ship of Fools
Simone Signoret, Oskar Werner, Michael Dunn. Directed by Stanley Kramer. 1965.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Some Like it Hot
Marilyn Monroe, Tony Curtis, Jack Lemmon, George Raft, Pat O'Brien, Nehemiah Persoff. Directed by Billy Wilder. 1958, 122 minutes. B&W.

LDC America, Catalog No. 4577-80
Linear CLV
Price: $39.98

A Streetcar Named Desire
Marlon Brando, Vivian Leigh, Kim Hunter, Karl Malden. Directed by Elia Kazan. 1951, 122 minutes. B&W.

LDC America, Catalog No. 4571-80
Linear CLV
Price: $34.98

Strike Up the Band
Judy Garland, Mickey Rooney. Directed by Busby Berkeley. 1940, 120 minutes, B&W.

LDC America, Catalog No. ML100565
Linear CLV
Price: $34.95

Suddenly Last Summer
Elizabeth Taylor, Montgomery Clift, Katherine Hepburn. Directed by Joseph L. Mankiewicz. 1959, 114 minutes. B&W.

LDC America, Catalog No. VLD5560
Linear CLV
Price: $29.95

Summertime
Katherine Hepburn, Rossano Brazzi, Darren McGavin. Directed by David Lean. 1955, 98 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Sunset Boulevard
William Holden, Gloria Swanson, Erich von Stroheim, Nancy Olsen, Fred Clark, Jack Webb, Hedda Hopper, Buster Keaton, Cecil B. DeMille, Anna Q. Nilsson. Directed by Billy Wilder. 1950, 110 minutes, B&W.

LDC America, Catalog No. LV4927
Linear CLV
Price: $29.95

Taming of the Shrew
Richard Burton, Elizabeth Taylor directed by Franco Zeffirelli. 1967.

LDC America, Catalog No.
Linear CLV
Price: $29.95

The Ten Commandments
Charlton Heston, Yul Brynner, Anne Baxter, Yvonne De Carlo, Edward G. Robinson, Debra Paget, John Derek, Cedric Hardwicke, Nina Foch, Martha Scott, Judith Anderson, Vincent Price, John Carradine. Directed by Cecil B. de Mille. 1956, 220 minutes.

LDC America, Catalog No. LV6524
Linear CLV
Price: $39.95

The Thin Man
William Powell, Myrna Loy, Maureen O'Sullivan, Nat Pendleton. Directed by W.S. Van Dyke. 1943, 93 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Third Man
Orson Wells, Joseph Cotton, Trevor Howard, Wilfred Hyde White. Directed by Carol Reed. 1950.

Voyager Press, Catalog No.
Linear CLV
Price: $39.95

The 39 Steps
Robert Donat, Madeleine Carroll, Lucie Mannheim. Directed by Alfred Hitchcock. 1934, 80 minutes. B&W.

Voyager Press, Catalog No.
Linear CLV
Price: $39.95

To Catch a Thief
Cary Grant, Grace Kelly, Jessie Royce Landis. Directed by Alfred Hitchcock. 1955, 103 minutes.

LDC America, Catalog No. LV 6308
Linear CLV
Price: $29.95

Tom Jones
Albert Finney, Susannah York, Hugh Griffith, Dame Edith Evans, David Tomlinson. Directed by Tony Richardson. 1963, 127 minutes.

LDC America, Catalog No. 4511-80
Linear CLV
Price: $34.98

Treasure of Sierra Madre
Humphrey Bogart, Walter Huston, Tim Holt, Bruce Bennett, Barton MacLane. Directed by John Huston. 1948, 126 minutes, B&W.

LDC America, Catalog No. 4639-80
Linear CLV
Price: $34.98

The Trouble with Harry
Edmund Gwenn, Mildred Natwick, Jerry Mathers, Shirley McLaine. Directed By Alfred Hitchcock.

LDC America, Catalog No.
Linear CLV
Price: $34.98

20,000 Leagues Under the Sea
Kirk Douglas, James Mason, Peter Lorre. Directed by Richard Fleischer. 1954, 118 minutes.

LDC America, Catalog No. 42112AS
Linear CLV
Price: $34.95

2001, A Space Odyssey
Keir Dullea, Gary Lockwood, William Sylvester, Daniel Richter. Directed by Stanley Kubrick. 1968, 139 minutes.

LDC America, Catalog No. ML100002
Linear CLV
Price: $39.95

Vertigo
James Stewart, Kim Novak. Directed by Alfred Hitchcock. 1958, 128 minutes.

LDC America, Catalog No. 40082
Linear CLV
Price: $39.98

War and Peace
Audrey Hepburn, Henry Fonda, Mel Ferrer, Herbert Lom, Anita Ekberg. Directed by King Vidor. 1956, 208 minutes.

LDC America, Catalog No.
Linear CLV
Price: $39.95

War of the Worlds
Gene Barry, Ann Robinson, Les Tremayne. Directed by Byron Haslin. 1953, 85 minutes.

LDC America, Catalog No. LV5303
Linear CLV
Price: $29.95

We're No Angels
Humphrey Bogart, Aldo Ray, Peter Ustinov. Directed by Michael Curtiz. 1955, 103 minutes.

LDC America, Catalog No. LV5414
Linear CLV
Price: $29.95

The Westerner
Walter Brennan, Gary Cooper, Doris Davenport. Directed by William Wyler. 1940. B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

White Christmas
Bing Crosby, Danny Kaye, Rosemary Clooney, Vera-Ellen. Directed by Michael Curtiz. 1944, 120 minutes, Digital Sound.

LDC America, Catalog No. LV6104
Linear CLV
Price: $39.95

The Wild One
Marlon Brando, Lee Marvin, J.C. Flippen. Directed by Laslo Benedek. 1954, 79 minutes. B&W.

LDC America, Catalog No.
Linear CLV
Price: $29.95

The Women
Norma Shearer, Joan Crawford, Rosalind Russell, Joan Fontaine, Paulette Goddard. Directed by George Cukor. 1939, 133 minutes, B&W.

LDC America, Catalog No. ML100506
Linear CLV
Price: $39.95

Wuthering Heights
Laurence Olivier, Geraldine Fitzgerald. Directed by William Wyler. 1939, B&W.

LDC America, Catalog No.
Linear CLV
Price: $34.95

The Wizard of Oz
Judy Garland, Frank Morgan, Ray Bolger, Burt Lahr, Jack Haley, Billie Burke, Margaret Hamilton, The Singer Midgets. Directed by Victor Fleming. Music and Lyrics by Harold Arlen and Yip Harburg. 1939, 101 minutes.

LDC America, Catalog No. ML100001
Linear CLV
Price: $34.95

HEALTH INSTRUCTION

AIDS
This is an adult education and orientation program which incorporates self-paced training and information about Acquired Immune Deficiency Syndrome (AIDS). The program is designed to provide instruction that is confidential and tailored to the individual's needs. Three branches address the specific needs of the homosexual population, the heterosexual population and the bisexual population. The package includes the videodisc and 50 AIDS information pamphlets. The contents of the course include:
- Description
- Treatment
- Symptoms
- Transmission
- Diagnosis
- Prevention
- Complications
- Implications for Lifestyle Changes

Required Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: Digital dump on disc (level 2)
Health EduTech, Inc.
Price: $995.00

Sexually Transmitted Diseases
This course on Sexually Transmitted Diseases is designed for use in the classroom or for individualized use for young adults and the general adult population. Included in the package are one two-sided videodisc, STD Teacher's Guide, and 30 Student Pamphlets. Content includes:
- STD Introduction/Overview
- What it is
- Symptoms
- Transmission
- Diagnosis
- Treatment
- Lifestyle and Prevention
- Eight Specific STD
  - —Herpes
  - —Syphilis
  - —Vaginitis
  - —Gonorrhea
  - —Chlamydia
  - —Genital Warts
  - —Hepatitis
  - —AIDS

Interactive CAV
Software: None available
Health EduTech, Inc.
Price: $1,895.00

The Way We Live
Up to fifteen viewers control an interactive exhibit, choosing one of four characters as a surrogate. The story branches according to the character chosen and other health-related choices made via a computer-linked voting system. The object is to make choices that will offer the best lifestyle for a longer lifespan. The majority vote is the deciding factor. In deciding whether their character should go to work by car, bicycle, or bus, for example, a vote for the bus increases life expectancy because accidents are less common in busses than cars or on bicycles.

Hardware Requirements
Pioneer PR-8210 videodisc player, Atari 800 system with 48K, 810 interface, disk drive, and 850 module, one large screen color monitor and two smaller monitors for data and voting display.

Optional Hardware
Extra input keypads for the "Computer Tally" system are available for $150.00 each. (Five are supplied with the basic package).

Programmed CAV
Software: Atari written in Forth
Interactive Image Technologies Inc.
Price: $5,000.00 for the basic package of a five input system, one videodisc and controlling software

HEALTH SAFETY

Back Safety—Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc.. This course is bilingual, (English and Spanish) and is geared to wide range of primary and secondary audiences. Primary audiences include; health care professionals, health care paraprofessionals, and health care support personnel. Secondary audiences include; housekeeping employees, food service employees, office personnel, patient care personnel, and maintenance personnel. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include;
- How the back works
- Proper back care
- Good lifting techniques
- Caring for your back
- Exercising your back

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin con-

nector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3 Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Electrical Safety—Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc.. This course is bilingual, (English and Spanish) and is geared to health care audiences. Audiences include; health care professionals, health care paraprofessionals, and health care support personnel. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include;
- Basic terminology
- Hospital electrical system
- Dangers
- Grounding
- Patient vicinity
- Electrical safety
- Emergency procedures

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3 Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Fire Safety—Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc.. This course is bilingual, (English and Spanish) and is geared to health care audiences. Audiences include; health care professionals, health care paraprofessionals, and health care support personnel. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include;
- What is fire
- Causes of fire
- Five levels of protection
- In case of fire
- Fighting a fire
- Evacuation
- Prevention

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3 Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Infection Control—Health Care Orientation Series
This is one part of a four-part Health Care series by Health EduTech, Inc.. This course is bilingual, (English and Spanish) and is geared primarily to health care audiences. Audiences include; health care professionals, health care paraprofessionals, and health care support personnel. Other audiences include; nursing employees, housekeeping employees, and food service employees. The course meets the JCAH criteria. The package includes a videodisc, 30 student pamphlets, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Content areas include;
- The chain of infection
- How infection is transmitted
- How to isolate an infection

- Proper handwashing
- Immunization
- Good health habits

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $995.00 ($3,495.00 for all four courses)

Business/Industry—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc.. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a general course on the hazards in business and industry. The course can be used by business and industry to avoid the high cost of noncompliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $995.00

Hospitality—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc.. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the hospitality area. Specific employee target groups include; administration, bartenders, servers, guest service employees, cooking, food preparation, kitchen, cleaning employees, engineering, building maintenance employees, housekeeping employees, laundry, valet employees, office employees, stewarding, dishwashing employees. The course can be used by the hospitality industry to avoid the high cost of noncompliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $1,990.00

Education—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc.. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the education area. Specific employee target groups include; administration, art teachers, auto mechanics teachers, building & grounds employees, custodial employees, food service employees, graphic arts & photography teachers, metal shop teachers, office & clerical employees, science teachers, transportation employees, and wood shop teachers. The course can be used by education to avoid the high cost of noncompliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The

system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $1,990.00

Health Care—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc.. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in the health care area. Specific employee target groups include; administration, engineering and maintenance employees, food service employees, housekeeping and custodial employees, laboratory employees, laundry employees, office and clerical employees, operating room employees, patient care professionals, radiation employees, and central sterile supply employees. The course can be used by the health care industry to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $1,990.00

Government—Health Hazards in the Workplace
This is one part of a five-part Health Hazard series by Health EduTech, Inc.. This course is geared to a wide variety of audiences. Each target audience is grouped with similar occupations on a separate disc. This disc is a course specific to the hazards in government jobs. Specific employee target groups include; street maintenance employees, parks and recreation employees, sewer department employees, water treatment and distribution employees, law enforcement employees, fire department employees, health department employees, equipment and vehicular maintenance employees, painter and carpenter employees, electrician and plumber employees, custodial employees, general office employees, and supervisory employees. The course can be used by government to avoid the high cost of non-compliance. The package includes a videodisc, 50 user pamphlets, and 50 certificates of training. The system is for a level 2 program. Content areas include:
- Introduction
- Definition and examples of 14 hazardous substance categories
- Definition and examples of 4 harmful physical agents
- Definition and examples of 5 modes of injury
- Material Safety Data Sheet (MSDS)
- Engineering controls
- Protective clothing and equipment
- Infectious agents

Necessary Hardware
Pioneer LD-V6010 videodisc player.

Programmed CAV
Software: level 2 digital dump on disc.
Health EduTech, Inc.
Price: $1,990.00

HISTORY

America and the World Since World War II
This is a collection of major world events using ABC news footage with Peter Jennings.

Volume 1, 1945-1952
Volume 2, 1953-1960
Volume 3, 1961-1975
Volume 4, 1976-1985

Linear CLV
Software: None available
LDC America
Price: $26.95 per volume

The History Disquiz
This disc is a one hour program that will test ones knowledge of 20th century history. Film clips of such events as the Beatles invasion, the first moon landing and the explosion of the Hindenberg are followed by questions. Score points as you follow the action. Steve Allen is the host for the program. The History Disquiz covers a wide range of topics including politics, entertainment, science, international affairs, trends, and sports to name a few.

Interactive CAV
Software: None available
LDC America
Price: $29.95

Mein Kampf
Documentary of World War II using footage from original sources including previously untapped German archives. The disc looks at the rise and fall of German fascism. 117 minutes, 1960. B&W

Linear CLV
Software: None available
LDC America
Price: $34.95

The Statue of Liberty
A 1986 Academy Award Nominee with facts and legends surrounding the Statue of Liberty.

Linear CLV
Software: None available
LDC America
Price: $29.95

Victory at Sea, Volumes 1–18
This television series was produced by NBC TV in 1954. It is a comprehensive visual history of the Allied naval warfare during World War II. The music is an original score by Richard Rodgers and the series is narrated by Alexander Scourby. Black and White.

Disc 1
Volume 1: Design for War: The Battle of the Atlantic 1939–1941
Volume 2: The Pacific Boils Over: Pearl Harbor, December 7, 1941
Volume 3: Sealing the Breach: Anti-Submarine Warfare 1941–1943

Disc 2
Volume 4: Midway Is East: Japanese Victories and the Battle of Midway
Volume 5: Mediterranean Mosaic: Gibraltar, Allied and Enemy Fleets, Malta
Volume 6: Guadalcanal

Disc 3
Volume 7: Rings Around Rabaul
Volume 8: Mare Nostrum
Volume 9: Sea and Sand

Disc 4
Volume 10: Beneath the Southern Cross
Volume 11: Magnetic North
Volume 12: Conquest of Micronesia

Disc 5
Volume 13: Melanesian Nightmare: New Guinea Campaign
Volume 14: Roman Renaissance: Sicily and the Italian Campaign
Volume 15: D-Day: Normandy

Disc 6
Volume 16: Killers and the Killed: Victory in the Atlantic 1943-1945
Volume 17: The Turkey Shoot: Conquest of the Marianas
Volume 18: Two If By Sea: Peleliu and Angaur

Linear CLV
Software: None available
LDC America
Price: $34.95 per disc

Victory at Sea, Volumes 19–26
This television series was produced by NBC TV in 1954. It is a comprehensive visual history of the Allied naval warfare during World War II. The music is an original score by Richard Rodgers and the series is narrated by Leonard Graves. Black and White.

Disc 7
Volume 19: The Battle for Leyte Gulf: Destruction of the Japanese fleet
Volume 20: Return of the Allies: Ground fighting in Luzon
Volume 21: Full Fathom Five: Destruction of Japanese Shipping

Disc 8
Volume 22: The Fate of Europe
Volume 23: Target Suribachi
Volume 24: The Road to Mandalay

Disc 9
Volume 25: Suicide for Glory: Conquest of Okinawa
Volume 26: Design for Peace: Hiroshima & the Japanese Surrender

Linear CLV
Software: None available
LDC America
Price: $34.95 per disc

The Video Encyclopedia of the 20th Century
This is an unprecedented collection of actual footage of the significant people and events of the 20th century. Over the past 23 years, CEL has identified and compiled millions of feet of original film and videotape documenting the 20th century. The Video Encyclopedia consists of the most significant 75 hours from the CEL Archive and offers a compelling visual perspective which motivates studying, learning, and understanding the people and the events of the 20th century . . . unlike any other educational resource available today.

A comprehensive alphabetical and chronological index system allows the user easy access to the 2,217 units in the Video Encyclopedia. The purchase price includes 38 videodiscs (in the CLV format), a four-volume Reference Set, three complete sets of the Master Index, an Instructional Manual, a curriculum guide, and a Pioneer LD-V4000 videodisc player. A few of the video units include:
- Thomas Edison's early films
- The San Francisco Earthquake
- The Russian Revolution
- The Depression Years
- FDR's "Nothing to Fear" Address
- The rise and fall of Adolph Hitler
- Japan's attack on Pearl Harbor
- Inaugurations of every 20th century president
- Dr. Jonas Salk developing the first polio vaccine
- Dr. Martin Luther King, Jr. leading the march to Montgomery
- Gorbachev succeeding Chernenko in the Soviet Union

Linear CLV
Software: None available
CEL Educational Resources
Price: $10,000.00

Vietnam: The Ten Thousand Day War, Volumes 1–6
This series of documentaries traces the history of the Ten Thousand Day War in Vietnam from the front lines to the home front in six videodiscs. The series is narrated by Richard Basehart and contains one volume per videodisc.

Volume 1: America in Vietnam and Dien Bien Phu
Volume 2: Days of Decision and Uneasy Allies
Volume 3: The Trail and Firepower
Volume 4: A Seige and Frontline America
Volume 5: The Village War and Peace
Volume 6: Surrender and The Unsung Soldiers

Linear CLV
Software: None available
LDC America
Price: $34.95 per volume

HOME ECONOMICS

Helen L. Allen Textile Collection
Helen Louise Allen taught at the University of Wisconsin-Madison from 1927-1968 and amassed an outstanding private textile collection. Miss Allen's collection was a bequest to the University and forms the basis of the current Allen Collection. A narrated video segment presents a short overview of the origin and contents of the Allen Collection.

The videodisc also contains 20,000 full color images of individual objects from ancient to modern times. They include archaeological textiles from the eastern Mediterranean and Pre-Columbian Peru, such as Late Roman (Coptic) tapestry woven roundels and bands, and woven and painted textiles from a Paracas needle-knitted band to a Chimu miniature tunic. Also included are contemporary fiberworks by pioneers in the fiber art movement including Claire Zeisler, Peter Collingwood, Walter Nottingham, and Luba Krecji. Examples of handmade and industrial products include over 3,000 woven objects, plus bobbin and needlemade laces, block-printed yardage, cross-stitch samplers, bark cloth and the work of major textile designers like Jack Lenor Larsen, Dorothy Liebes, Sonia Delaunay, and Alexander Girard.

The disc is designed in a level one format with indexes supplied on the disc for quick and easy access to the images. A printed index accompanies each disc that provides basic information about all objects pictured on the disc fully cross-referenced, a subject index, and an artist/designer index.

Interactive CAV
Software: None available
University of Wisconsin
Price: $250.00 for disc and printed index

HORTICULTURE

Exotic Plants: A Videodisc Compendium
This disc contains over two thousand high quality color photographs of tropical, subtropical and other exotic plants. All of the popular exotic plant families are pictured, many in their natural habitats. The slides are from the personal collection of international horticulturist, photographer, and author Charles Marden Fitch. Also included on this disc is a film illustrating what many of these plants have in common, the ability to flower. "Why Plants Flower" is a short motion picture based on the time lapse cinematography of Ken Middleham, pioneer in high speed and time lapse photography.

The disc also comes with a User's Guide that enables quick location of specific information on each plant pictured. The guide contains a Chapter and Frame Index, a section on How to Use the Disc, and Sample Lesson Plans. The disc contents includes:

I. Introduction to Exotic Plants: A Videodisc Compendium
II. Still Frame Exotic Plants Compendium—A Visual Encyclopedia of Exotic Plants
  - Taxonomic Groupings: Family and Genus Survey
  - Plant Habitats/Botanic Gardens/Common Names
  - Popular Groupings
    - Bromeliads/Palms/Cacti and other Succulents
    - Flowering and Foliage Ornamentals
    - Orchids/Gesneriads
  - Plant Care/Environmental Considerations
    - Light and Temperature Preferences
    - Propagation Techniques/Ease of Growth

III. Why Plants Flower: A Time Lapse Motion Picture
  - What is a Flower?/Why Are Insects Attracted to Them?
  - Where Do Fruits Come From?/What Do Seeds Do?

Interactive CAV (8")
Software: None available
VT Productions
Price: $230.00

Gardening at Home
This disc provides the fundamentals of gardening for both the beginner and expert gardener. A plant guide includes over 350 plants to help guide the user in their care and growth. The dual audio capabilities of the laserdisc are used for separate audio programs.

Interactive CAV
Software: None available
LDC America, Catalog No. 11-110
Price: $29.95

LANGUAGE

Exploring Language: Thinking, Writing, Communicating
This series of discs is designed to be a lower level Humanities course. The series has a dual purpose: to explore the social, psychological, and political implications of language and to teach the fundamentals of clear, concise writing by providing week-by-week instruction in organizing and writing essays. The composition and language-study parts of this course compliment each other.

The composition portion helps to improve a student's awareness of the language environment. These topics include the structure and function of language, how language is acquired, how language is used for manipulation in politics and advertising, and how it is a medium for sexism and chauvinism. This dual focus helps students to understand and to use language more effectively.

Portions of six texts and a Course Guide are required if the discs are used for credit. Suggested credit value is six semester-hours. Content of the discs are listed below.

Program 1: The Shape of Language
Program 2: Communities of Speech
Program 3: Language, Learning and Children
Program 4: The Rhyme and Reason of Politics
Program 5: The Written Word
Program 6: Men, Women and Language
Program 7: Just Plain English
Program 8: Apes and Language
Program 9: The State of English

Interactive CAV
Software: None available
Maryland Center for Public Broadcasting
Price: $125.00 per disc, or $500.00 for the set. Print materials cost an additional $60.00

LANGUAGE—FOREIGN

The Language Learning Disc
This disc is designed to help foreign language students take charge of their own learning by improving their language skills and by becoming a more active learner. The disc provides opportunities for students to experiment with a wide range of strategies. Specif-

ically, disc users can expect to derive the following benefits from this instructional material:

- Gain insights into their own learning
- Be able to decide on strategies appropriate to a task and to their own learning purpose
- Use these strategies in a classroom, self-study, and conversation
- Determine the best strategies to improve their memory for language learning
- Learn to transfer relevant knowledge from one language to another
- Learn to use resources wisely

The disc accomplishes this purpose using a wide range of topics (from the reading of an instructional manual to connect a VCR, from listening to news and weather on a radio and T.V., to accomplishing social functions through appropriate language use) and using a wide range of languages (students can work with 20 languages on the disc).

Necessary Hardware
IBM-PC computer with a Microkey 1125 Overlay card, a Sony PVM Series Monitor or compatible, and a Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided
Joan Rubin Associates
Price: $995.00

LEGAL EDUCATION

Evidence Objections
(An interactive videodisc for legal education)
This disc is designed to augment the instruction that a law student receives in an Evidence and Trial Advocacy course. Each student can use the exercise individually or in a team of two to get experience in recognizing when to object and how to argue in support of an objection. The law student will play the role of defense council in a criminal trial. All of the other participants are on the videodisc. During the prosecutor's direct examination, improper questions will be asked. The witness will have improper information in some of the answers. The student must interrupt the trial at the proper occasions, otherwise the trial will not stop. After making the objection, the student will have to state the correct reason and the judge will pass a ruling on it. The trial will then resume at the proper point. The computer provides an analysis of the student's performance.

Hardware Requirements
IBM-PC computer and a Pioneer LD-V1000 Laserdisc player

Programmed CAV
Software: Supplied for IBM-PC
Center for Computer-Assisted Legal Instruction
Price: $450.00

MATHEMATICS

Infinity Factory
A series of 20 thirty minute lessons (10 discs) for students between the ages of 8 and 12 to learn math in real life situations. This is geared for students in the Black and Latin communities. All programs are closed-captioned for the hearing-impaired.

Lesson Titles

- Percentages
- Graphs
- Decimal Fractions (1)
- Approximation (1)
- Measurement in Meters (1)
- Angles
- Averages
- Fractions
- Estimation of Length and Quantity
- Estimation of Quantity and Length
- Estimation of Weight and Volume
- Measurement of Volume
- Mapping and Scaling
- Negative Numbers
- Decimal Fractions (2)
- Approximation (2)
- Measurement in Meters (2)
- Measurement of Time
- Multiplication
- Problem-Solving

Linear CAV
Software: None available
GPN
Price: $300.00 for ten discs and manual

Interactive Math Series
This is an interactive videodisc program presented on 21 disc sides. It is geared for courses that cover the specific content, or for adult and remedial courses. The package includes; Six Basic Math videodiscs, 30 Basic Math Learner Guides and Placement Tests, one Basic Math Instructor's Guide, five Applied Algebra discs, 30 Applied Algebra Learner Guides and Placement Tests, one Applied Algebra Instructor's Guide, and one floppy disk per chapter of instruction (with level 3 configuration). Available in a level 2 or level

3 configuration for IBM, Apple Sony or NCR computers. Course chapters include:

Basic Math Program
1—Whole Numbers
- Preview and Self-test
- Introduction
- Reading and writing whole numbers
- Addition and subtraction of whole numbers
- Multiplication and division of whole numbers
- Finding averages of whole numbers
- Practical applications of whole numbers

2—Fractions
- Preview and Self-test
- Introduction
- Definitions of fractions
- Addition and subtraction of fractions
- Multiplication and division of fractions
- Simplifying complex fractions
- Practical application of fractions

3—Decimals and Decimal Fractions
- Preview and Self-test
- Introduction
- Properties of decimals
- Changing fractions to decimals and decimals to fractions
- Rounding decimals
- Addition and subtraction of decimals
- Multiplication and division of decimals
- Practical application of decimals and decimal fractions

4—Percent
- Preview and Self-test
- Introduction
- Properties of percent
- Changing fractions to percent and percent to fractions
- Solving basic percents
- Jacob's law
- Practical applications of percent

Applied Algebra Program
1—Basic Algebra
- Preview and Self-test
- Basic properties and definitions of algebra
- Algebraic signs and symbols
- Like and unlike terms
- Positive and negative numbers
- Addition and subtraction of signed numbers
- Multiplication and division of signed numbers
- Removal of signs of grouping
- Basic operations with exponents

2—Evaluating Algebraic Expressions
- Preview and Self-test
- Introduction
- Evaluating algebraic expressions
- Evaluating formulas
- Evaluating complex formulas

3—Solving Simple Equations
- Preview and Self-test
- Properties and equations
- Solving simple equations by addition and subtraction
- Solving simple equations by multiplication and division
- Solving simple equations by special operations
- Solving simple equations by several operations

4—Solving Simple Formulas
- Preview and Self-test
- Introduction
- Solving simple formulas by addition and subtraction
- Solving simple formulas by multiplication and division
- Solving simple formulas by special operations
- Solving simple formulas by several operations

5—Ratio Proportion and Variation
- Preview and Self-test
- Introduction
- Properties of ratios and simplifying ratios
- Properties of proportion and solving proportion
- Practical application of ratio, proportion and variations

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (Apple)—Apple II+ or IIe (64K) computer with one or two disk drives, Pioneer LD-V700 videodisc player, Whitney's Apple SuperCircuit or the Optical Data Corporation VAI-IIe interface, and any NTSC/composite monitor.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $7,990.00

Mastering Decimals and Percents
This is a companion course to Mastering Fractions. The program covers the skills needed for high school

equivalency tests, such as GED. The package includes one two-sided videodisc, instructor's manual, and 35 student response booklets. This minicourse consists of 15 lessons that include:

- Reading and writing decimals
- Adding and subtracting decimals
- Decimal/fraction/percent conversions
- Decimal division and multiplication
- Rounding
- Word problems involving decimals and percents

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $600.00

Mastering Fractions
This program takes students through the subject with explanations, guided practice, and independent practice on all requisite skills. The materials include three double-sided videodiscs, a Teacher's Guide and Student Response Booklet. The 35 lessons covering the core concepts of fractions include:

- Discriminating whether fractions are more than, less than, or equal to one
- "Decoding" fractions so they are understandable on a number line or as diagrams
- Writing whole numbers and other values as fractions
- Generating equivalent fractions
- Ranking fractions by size
- Rewriting whole numbers on number lines as fractions
- Rewriting improper fractions as mixed numbers
- Simplifying fractions
- Multiplying fractions by fractions and whole numbers
- Adding and subtracting fractions with unlike denominators
- Rewriting mixed numbers as fractions
- Dividing fractions

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $1,800.00

Mastering Ratios
This program builds on the concepts covered in Mastering Fractions and Mastering Decimals and Percents. The material is designed to be used with upper elementary through senior high students providing lesson presentations, quizzes, on-screen teacher prompts, remediation exercises, and frequent cumulative tests. The package includes three two-sided videodiscs, instructor's manual, and 35 student response booklets. This minicourse consists of 40 lessons that include:

- Relationships between equivalent fractions and ratios
- Estimating the missing part of a ratio
- Translation word problems into ratios
- Solving word problems that include percents and ratios

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $1,800.00

Math Assessment
This is a bilingual math assessment videodisc for grade levels 1-3. It contains 335 criterion-referenced objectives presented in English or Spanish. Developed through Utah State University's videodisc research program, the disc can be used with or without an external computer. The package includes:

- Math Assessment Videodisc
- Users manuals
- Record-keeping software
- Support materials

Hardware Requirements
(Optional External Program)
Allen Communications Interface with Apple II or IIe micro, Pioneer PR-7820, PR-8210 or VP-1000 videodisc player.
(Internal Program)
Pioneer PR-7820-3 videodisc player (Epson printer optional)

Programmed CAV
Software: Provided for Apple II or IIe, or encoded on disc
Systems Impact, Inc.
Price: $295.00 with diskettes, $195.00 for encoded disc.

Math in Biology
This program combines a videodisc and a microcomputer to provide interactive basic math instruction. The target groups for the instruction are women and minorities who seek a career in the life and health sciences, but have inadequate math skills. It is applicable to others as well. Biology examples are used throughout.

Programmed CAV
Software: Provided
University of Washington
Price: $495.00

Trigland
Trigland is an experimental interactive microcomputer/videodisc course in Trigonometry. It is designed for schools that are unable to offer a conventional trigonometry course. It is intended to be used by small numbers of students, preferably 1 or 2 at a time. It is recommended that a math teacher closely monitor the students' progress, give additional instruction when needed and provide supplemental materials to reinforce the topics discussed in the Trigland Modules. Progress quizzes are provided for each module to help the teacher to determine areas of weakness and strength.

The course consists of one videodisc and sixteen computer diskettes containing twelve modules of instruction. The module topics are:

1. Introduction
2. Concepts of Relation and Function
3. Circular Functions
4. Degrees and Radians
5. Sine and Cosine Functions
6. Tangent and Reciprocal Functions
7. Basic Identities
8. Trigonometric Ratios, Interpolation and the Law of Sines and the Law of Cosines
9. Amplitude, Period, Phase and Vertical Shift and Addition of Ordinates
10. Uniform Circular Motion, Periodic Motion and Simple Harmonic Motion
11. Inverse Functions
12. Solution of Simple Linear and Quadratic Equations Involving Circular Functions, and Equations Containing More Than One Circular Function.

Necessary Hardware
Apple IIe with 64K and two disk drives, a serial interface card, and a Pioneer LD-V6000 series videodisc player are required.

Programmed CAV
Software: Provided for Apple IIe
MECC
Price: $249.00 for videodisc, sixteen Apple diskettes and support manual

MEDICINE—CARDIOLOGY

Dysrhythmia Recognition Course
The purpose of the American Heart Association Dysrhythmia Recognition Course is to maximize competency and skills in recognizing dysrhythmias. It can be used as a constantly available course for training in dysrhythmia recognition, as an instructor's aid, or within the Advanced Cardiac Life Support Course.

The technology includes a microcomputer interfaced with a videodisc player, and an interactive audio cassette player. The Learning System enhances instruction in psychomotor and cognitive skills by using multiple media. Video screens, and a synchronized audio track. All components combine to assist the student in gaining understanding and mastery of course content with continual audio and visual feedback.

The course consists of a series of lessons which provide the background information necessary for the understanding of dysrhythmia recognition. These sections are designed to cover, augment and expand upon the Advanced Cardiac Life Support Textbook material.

There are practice and testing sections in:
- Static Dysrhythmia Recognition
- Dynamic Dysrhythmia Recognition
- Therapeutic Modalities

With additional components in:
- Static Dysrhythmia strips, for practice and testing, generated randomly from a bank of 10 examples for each dysrhythmia
- On-demand Reference Banks in Pharmacology, Algorithms and Dysrhythmia
- The ability to include or exclude specific lessons, practices or tests
- Recorded test scores for administrative review kept "on file" in the computer's memory
- Ungraded content quizzes after each lesson which allow the student to ascertain his or her own retention level

Hardware Requirements
The American Heart Association CPR/ACLS Learning System.

Programmed CAV
Software: Included
Actronics Inc.
Price: $17,000.00 including the AHA CPR/ACLS Learning System, $3,500.00 for software only

The Interactive CPR V4 Courseware
The Interactive CPR V4 Courseware and Learning System were originally developed by the American Heart Association as a means of significantly increasing the number of persons trained in cardiopulmonary resuscitation by providing a high quality, standardized course that does not require an increased number of instructors.

The technology includes a microcomputer interfaced with a videodisc player, an interactive audio cassette player and a CPR manikin wired with a series of electronic sensors. The learning theory is based on the premise that student performance is improved by immediate feedback which can zero in on the student's mistakes as they occur.

As the student interacts with the manikin, the system provides four different types of feedback:

1) audiovisual coaching using videodisc action segments selected by the computer
2) visual display on the computer monitor (indicating, for example, that hand placement is incorrect or depth of compression is too shallow)
3) Audio tones to indicate the proper timing of each compression
4) a graphic summary on the computer monitor which details overall performance

An individual student with some medical background may be able to complete the CPR course in two hours. A group of four students utilizing one system may require as little as four hours to finish the program. Recertification may require less than one hour.

Hardware Requirements
The American Heart Association CPR/ACLS Learning System. An optional Infant Manikin is available for $3,500.00.

Programmed CAV
Software: Included
Actronics Inc.
Price: $22,000.00 including the AHA CPR/ACLS Learning System, $7,500.00 for software only

How Your Heart and Circulatory System Works
This videodisc is designed to teach children 10 to 17 years about the structure of the heart, function of the blood, how to monitor heart rate, take blood pressure and to understand diseases and disorders of the heart and blood vessels. Each disc is accompanied by a 110 page operator's manual. This manual explains how to use the automatic and manual mode to arrange and locate materials. The manual also describes and lists locations of motion scenes, slide and print material for each of the six chapters on the videodisc.

Hardware Requirements
Pioneer PR-7820 or LD-V6000 for programmed use

Programmed CAV
Software: Level 2 encoded on disc
Simon Fraser University
Price: $100.00

MEDICINE—EMERGENCY PROCEDURES

DxTER—The Clinical Simulator System
This is a series of interactive videodiscs for the nurse or physician in the intensive care or emergency room setting. The user must solve treatment problems and make decisions under the simulated daily pressures of these areas. The medical progress of the patient is depicted "live" on the screen and reinforced by the same visual, verbal and auditory cues the clinician would receive from the patient and other professionals in an actual emergency. The clinicians can generate and respond to clinical physiological and pathological data in order to make treatment decisions. The patients outcome depends on the decisions the clinician makes.

Necessary Hardware
Sony View System

Programmed CAV
Software: Provided
Intelligent Images, Inc.
Price: $750.00

Trauma Training Materials Videodisc
The University of Washington Department of Surgery and the HSCER developed this program of two discs (three sides) that demonstrates basic techniques that must be mastered by a trauma care team working in an emergency room setting. Each side covers two topics including interactive testing segments on each topic. Topics include: Approach to the Critically Injured Patient; Chest Tube Placement; Subclavian Catheterization; Peritoneal Lavage; Venous Cannulation and Arterial Puncture.

Hardware Requirements
The Pioneer PR-7820 or LD-V6000 videodisc player is needed for the interactive testing segments. The disc may be used without the testing segments on any laserdisc player.

Programmed CAV
Software: Level 2 testing segments encoded on disc
American Technology Resources
Price: $225.00

MEDICINE—HEMATOLOGY

Medical Applications Videodisc: Hematology
A collaborative effort of the American Society of Hematology, the Western University Physical Diagnosis

Slide Bank, the World Health Organization and the University of Washington Health Sciences Center for Educational Resources.

By referring to the accompanying catalog of the disc contents the user may rapidly and accurately locate any frame of the disc. The disc may be utilized with either a syllabus or an external computer source (microcomputer to full main frame) to develop a variety of computer-assisted lessons, tests or case simulations.

This one-sided videodisc contains:

1. The entire American Society of Hematology morphology collection (approximately 2200 frames)
2. The World Health Organization International Histologic Classification of Tumors (approximately 2500 frames)
3. Selected frames from the Western Universities Physical Diagnosis Slide Bank (approximately 2000 frames)
4. The film "Red Cell Shapes" by Professor Marcel Bessis
5. The short technique video tape "Venipuncture: The Vacutainer System" by Joyce Behrens, M.T. (ASCP)
6. A short demonstration program introducing the applications for the disc

Interactive CAV
Software: None available
American Technology Resources
Price: $250.00 (estimated)

MEDICINE—MICROSCOPY

Clinical Microscopy
This one-sided disc contains materials from approximately 200 different clinical cases. It includes material in Hematology, Pathology, Cytology, Histology, Parasitology, and Microbiology. Scans of the material at various microscopic features of the case in question. The accompanying catalog allows generation of a wide variety of instructional programs utilizing either syllabi or computer (including microcomputer) control.

Interactive CAV
Software: None available
American Technology Resources
Price: $250.00 (estimated)

MEDICINE—NEUROLOGY

Assessment of Neuromotor Dysfunctions in Infants
This program was developed at the University of Iowa by physicians, physical therapists, and computer-assisted instruction specialists. The program was the recipient of the Fred Sage Award in 1983 and the Nebraska Interactive Videodisc Award in 1984 for the best educational project. The program presents visual examples of clinical assessment procedures in a unique format that allows the user to interact with 27 patients videotaped over a five month period. This offers first-hand exercise in the methods employed by professionals who test for neuromotor dysfunction in a self-paced program that is easy for video-computer novices to understand.

A comprehensive introduction reviews factors contributing to abnormal development, clinical clues one may note during routine exam, and questions an examiner should ask every patient. The user then participates in systematic assessment of five parameters of neuromotor function in infants followed by a case study. Each lesson is listed below with an approximate lesson completion time.

- Introduction (10-25 minutes)
- Muscle function (35-50 minutes)
- Movement (20-35 minutes)
- Reflexes (30-45 minutes)
- Structure (10-15 minutes)
- Gross motor skills (30-45 minutes)
- Case study (20-35 minutes)

Hardware Requirements
An IBM TII System available through Allen Communications, or 128K IBM-PC with one or two disk drives, Allen Communications UVC interface, Pioneer LD-V1000 videodisc player, and separate monitors for videodisc and computer.

Programmed CAV
Software: Provided for IBM-PC
Williams and Wilkins
Price: $850.00

Disorders of the Nervous System: Motor
This one-sided disc is a compilation of material from a "visual glossary" collection of neurological dysfunction. Normal and abnormal gaits and reflexes are demonstrated as well as a wide variety of motor signs and disorders. The accompanying catalog allows rapid access for lecture demonstration or self-study as well as the compilation of written or computerized instructional programs.

Interactive CAV
Software:
American Technology Resources
Price: $175.00

Disorders of the Nervous System: Mentation
This one-sided disc is a compilation of material from a "visual glossary" collection of neurological dysfunction. Six patients are shown who demonstrate a variety of disorders of mentation. The accompanying catalog allows rapid access for lecture demonstration or self-study as well as the compilation of written or computerized instructional programs.

Interactive CAV
Software:
American Technology Resources
Price: $175.00

MEDICINE—ORTHOPEDICS

The Active Knee
The Active Knee was created by Dr. Walter A. Hoyt, a leader in orthopedic medicine, Dr. Robert H. Bell, an orthopedic surgeon, Dr. P. Joseph Vertucci, president of The ALIVE Center and leading interactive design specialist, and the staff of The ALIVE Center.

Designed as a modular course, it is geared to non-orthopedic medical professionals, such as emergency physicians, paramedics, coaches and trainers, medical students, and professionals who are continuing their education. The program also has a great value to patients and athletes who run a high risk of knee injury at some time in their career.

The course is a two-sided Level 3 interactive videodisc providing up to 20 hours of instruction with five modules of instruction. Each module is further divided into subtopics. The modules are as follows:
• FUNCTIONAL ANATOMY OF THE KNEE
Module I presents functional anatomy, addressing bones, major ligaments, main muscle groups, and the specific forces that can damage anatomical structures.
• PRE-SEASON EXAMINATION OF THE KNEE
Module II covers a systematic process for conducting pre-season screening exams so you can determine which athletes and active people may be predisposed to knee injury.
• PHASE I KNEE EXAMINATIONS
Module III prepares the examiner to conduct on-site examinations of the knee.
• PHASE II KNEE EXAMINATIONS
Module IV provides complete procedures necessary to conduct off-site, comprehensive and systematic knee examinations.
• CASE STUDIES
Module V presents detailed practical applications, using specific case histories.

Hardware Requirements
Visage V: Station 2000 or the IBM InfoWindow (Upgrade kits are available for IBM-PC owners who wish to use their own PC with the system).

Programmed CAV
Software: Provided for IBM and compatibles
The ALIVE Center
Prices:
$2,975.00 for disc, software, student workbook, and instructor's manual
$11,990.00 for complete courseware and hardware
$6,295.00 for hardware upgrade package
$19.95 for additional student workbooks
$22.95 for additional instructor's manuals

MEDICINE—ULTRASONICS

Sight Through Sound—An Interactive Introduction to Medical Diagnostic Ultrasound
This one-sided disc covers the basic concepts and practice of ultrasound from principles of physics to the use of equipment and accurate interpretation of sonographic images. Viewers benefit from an interactive learning games approach providing valuable feedback on short case histories, identification of sonograms for clinical applications, recognizing transducer motion, and more. Viewers can actually manipulate simulated ultrasound scanner controls while watching the results of their actions on the video monitor.

Hardware Requirements
Pioneer PR-7820 or LD-V6000 player needed for interactive program.

Programmed CAV
Software: Level 2 encoded on disc
American Technology Resources
Price: $495.00

MEDICINE—UROLOGY

Urinary Catheterization
This disc demonstrates the correct procedures for all aspects of preparing the equipment and the patient (male and female) for urinary catheterization. The

disc also demonstrates the proper catheterization techniques for both male and female patients. The disc includes both instructional and testing features. The videodisc, including a manual, are available to accredited educational and health care institutions.

Hardware Requirements
The system has program dumps on the disc, and is designed to be used with a Sony LDP-1000 videodisc player.

Programmed CAV
Software: Level Two program on the videodisc
ACCESS Alberta
Price: $225.00 including manual

MUSIC—INSTRUCTION

Videodisc Music Series, Disc 1
This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

Side 1. Symphonic and Chamber Music
Joseph Haydn, "Symphony No.94 (Surprise)," 2nd movement. University of Michigan Orchestra.
- Stereo audio performance
- Two-line score with harmonic reduction & analysis

W.A. Mozart, "Quintet for Clarinet and Strings K.581," first movement. Delos String Quartet with Peter Hill.
- Full video performance with stereo sound
- Full score with harmonic analysis
- Melodic contour map

Side 2. Chamber Music
W.A. Mozart, "Piano Concerto in G Major K.453," 1st movement. Ars Musica with Penelope Crawford.
- Full video performance with stereo sound
- Performance on period instruments
- Two of Mozart's cadenzas
- Reduced four-line score

Interactive CAV
Software: None available
University of Delaware
Price: $295.00 for four discs and Manual

Videodisc Music Series, Disc 2
This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

Side 1. Symphonic Program Music
Hector Berlioz, "Symphonie Fantastique," 5th movement. Oberlin Conservatory Orchestra.
- Full video performance with stereo sound
- Reduced Score
- Statements of the Idee Fixe from all movements

Gregorian Chant, "Dies Irae." Catholic University
- Full video performance with stereo sound
- Rhythmic analysis of the chant statements in the Symphonie Fantastique

Side 2. Orchestral Program Music
Claude Debussy, "Prelude to the Afternoon of a Faun." Oberlin Conservatory Orchestra.
- Stereo audio performance
- Reduced two-line score

Orchestral Instrument Demonstrations
- Video examples with stereo sound
- Video spectrum analysis of selected instruments

Interactive CAV
Software: None available
University of Delaware
Price: $295.00 for four discs and Manual

Videodisc Music Series, Disc 3
This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

Side 1. Vocal Music
Karl Loewe, J.F. Reichardt, Franz Schubert, "Erlkonig." Curtis Institute of Music.
- Full video performances for all three settings
- Full score of the Schubert with harmonic analysis
- Full audio performance of the Schubert in English

Johannes Brahms, "Shaffe in Mir Gott," from the 51st Psalm. Oberlin Conservatory Chorus.
- Full audio performance in stereo
- Full score with color-coded form analysis

Side 2. Opera
Giacomo Puccini, "La Boheme," selected scenes. Metropolitan Opera, directed by Franco Zeffirelli.
- Video performances of selected scenes from the opera
- Franco Zeffirelli's views on singers/actors
- Rehearsal sequences of the opera
- Excerpts of the soon-to-be-released disc by the Met

Interactive CAV
Software: None available
University of Delaware
Price: $295.00 for four discs and Manual

Videodisc Music Series, Disc 4
This four disc series was designed and produced by the University of Delaware under a grant from NEH. Each disc side contains a supporting slide library.

Side 1. Keyboard Works
Carl Phillipp Emanuel Bach, "Fantasia in G Minor." James Weaver, Smithsonian Institution.
- Full performances on clavichord and fortepiano
- Full score with harmonic reduction and analysis
- Demonstration of period keyboard ornaments

Ludwig van Beethoven, "Piano Sonata Opus 13 (Pathetique)," Michael Steinberg, University of Delaware.
- Full video performance in stereo
- Full score with harmonic reduction and analysis
- Color-coded formal analysis

Side 2. Keyboard Works
Frederic Chopin, "Polonaise, Opus 53." Leon Bates, University of Delaware.
- Full video performance in stereo
- Full score with harmonic reduction
- Full score with color-coded formal analysis

Interactive CAV
Software: None available
University of Delaware
Price: $295.00 for four discs and Manual

Music Is
This course is geared for upper elementary level music classes. The course consists of 5 discs with a 30 minute lesson on each side. The instruction is based on a linear play format, so there is no interactivity built into the course. The disc is also equipped for closed captions.

1. Music Is
2. Music Is Rhythm
3. Music Is Melody
4. Music Is Harmony
5. Music Is Tone Color
6. Music Is Form
7. Music Is Composed
8. Music Is Conducted
9. Music Is Improvised
10. Music Is Style

Linear CAV
Software: None available
GPN
Price: $150 for five discs with teacher's guide

MUSIC—JAZZ

Nat Adderly, Jazz Life Volume 3
Songs include "Work Song," "Tallahassie," "Chelsea Bridge," "Jordanian Walk" and "The Scene." Recorded live at the Village Vanguard. 55 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Toshiko Akiyoshi: My Elegy
Toshiko Akiyoshi, piano; Lou Tabakin, tenor sax/flute; Frank Weise, sax; Scott Robinson, drums. Songs include "Elegy," "Remembering Bud," and "Autumn Sea."

LDC America, Catalog No.
Linear CLV
Price: $34.95

Count Basie Orchestra
Recorded on November 11, 1985, at Shinjuku Koseinenkin Kaikan. Conducted by Thad Jones with Joe Williams and Nancy Wilson. Songs include "Night in Tunisia," "Satin Doll," "Moonlight Becomes You," "One O'Clock Jump," and "April in Paris." Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $47.95

Tony Bennett Sings
Includes "This Can't Be Love," "My Funny Valentine" and "Lullaby of Broadway." 49 minutes.

LDC America, Catalog No.
Linear CLV
Price: $.

Art Blakely
With Wynton Marsalis live at 7th Avenue South, December 21, 1981. Songs include; "MS.BC," "My Ship," "Fuller Love," "Alicia" and "Gypsy Folktales." 54 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Carla Bley: In Concert
88 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Cab Calloway and His Orchestra
This disc was recorded live at Disneyland and includes "Minnie the Moocher" and "It Ain't Necessarily So."

LDC America, Catalog No.
Linear CLV
Price: $24.95

Richie Cole, Jazz Life Volume 1
Recorded June 1981 at the Village Vanguard in New York. "Punishment Blues," "Yardbird Suite," "Island Breeze," and "Body and Soul." 51 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Chick Corea
Songs include "L's Bop," "Why Wait," "3,500 Miles High," and "Guernica." 57 minutes.

LDC America, Catalog No.
Linear CLV
Price: $38.95

Chick Corea & Gary Burton
Crystal Break

LDC America, Catalog No.
Linear CLV
Price: $24.95

Chick Corea & Gary Burton Live in Tokyo
Songs include "La Fiesta," "Senor Mouse," and "Children's Songs." 58 minutes.

LDC America, Catalog No. PA-83-037
Linear CLV
Price: $24.95

Miles Davis: The Sound of Miles Davis
Disc includes "So What" and "The Duke". 27 minutes. Monaural sound, Black and White.

LDC America, Catalog No.
Interactive CAV
Price: $34.95

George Duke: Super Keyboards

LDC America, Catalog No.
Linear CLV
Price: $34.95

Ella Fitzgerald
Recorded with Paul Smith Trio and All Stars. Songs include "Night and Day," "Honeysuckle Rose," "Old Mac Donald," and "Georgia on My Mind." 59 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Dizzy Gillespie & The All-Star Dreamband
With Gerry Mulligan, Max Roach, Paul West, John Lewis, Milt Jackson, and others. Recorded on February 16, 1982. 90 minutes.

LDC America, Catalog No.
Linear CLV
Price: $44.95

Dizzy Gillespie: Live at Concerts by the Sea
Recorded on February 26, 1981. Songs include "Be Bop," "Hard of Hearing," "Mama," and "Jazz America."

LDC America, Catalog No.
Linear CLV
Price: $29.95

Johnny Griffen at the Vanguard
1981, CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Johnny Griffen, Jazz Life Volume 2
Songs include "Blues for Gonzi," "56," "A Monks Dream" and "Blues for Lesley." Recorded in June of 1981 at the Village Vanguard in New York. 47 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Chico Hamilton
Songs include "Clinton Avenue" and "The Baron." CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Lionel Hampton and His Big Band
This disc was recorded live at Disneyland and includes "Skylark," "Hamp's Boogie Woogie," and "Flying Home."

LDC America, Catalog No.
Linear CLV
Price: $24.95

Woody Herman and The Young Thundering Herd
This disc was recorded live at Disneyland and includes "Things Ain't What They Used To Be," "Woodchopper's Ball," "Blue Flame," and "Sonny Boy."

LDC America, Catalog No.
Linear CLV
Price: $24.95

Freddie Hubbard Live at The Village Vanguard
Songs include "Happy Times," "Guernica," "Little Waltz," "Fantasy in D." Recorded on June 24, 1982. 55 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Keith Jarrett: Vermont Solo Concert 1977

LDC America, Catalog No.
Linear CLV
Price: $41.95

Keith Jarrett: Last Solo
Recorded January 25, 1984 in Tokyo. 92 minutes.

LDC America, Catalog No.
Linear CLV
Price: $44.95

Keith Jarrett Trio Live 1985

LDC America, Catalog No.
Linear CLV
Price: $44.95

Quincy Jones: Reflections
Includes "Ironside," "Killer Joe," "What's Going On," "Razzamatazz," "Mantaca" and "Ai No Corrida." 60 minutes.

LDC America, Catalog No.
Linear CLV
Price: $38.95

George Kawaguchi Meets Shelly Manne
Songs include "Old Man," "Sand Storm," "Windy Afternoon," "Traditional" and "Bear Walk."

LDC America, Catalog No.
Linear CAV
Price: $29.95

Lee Konitz
Live at the Village Vanguard. Recorded in September of 1983 and two Black and White clips from 1954. Songs include "Max," "Chopin Prelude," and "Subconscious Lee." 55 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Ramsey Lewis

LDC America, Catalog No.
Linear CLV
Price: $29.95

Mike Mainieri: 7th Avenue South
Recorded live at 7th Avenue South with Omar Hakim, Eddie Gomez, and Bob Mintzer, this includes "T-Bag," and "Sarah's Touch." 1982, CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Henry Mancini & Friends
Recorded at the Edmonton Jubilee Auditorium with Vicki Carr & Robert Goulet in 1980. Includes the Theme from "Ten," "Moon River," and "Song For You." 48 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Mike Mainieri: Manhattan Express
Mike Mainieri with Bob Minzer on electric bass clarinet. Recorded in December of 1981 at Seventh Avenue South, New York. Songs include "I'm Sorry," "Flying Colors," "Crossed Wires," and "Bamboo." 50 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Manhattan Transfer: Vocalese
With special appearances by Bobbie McFerrin and the Four Freshmen, this disc includes "Bee Bop Blues," "Another Night in Tunisia," and "To You." Digital Sound.

LDC America, Catalog No. VAL-3017
Linear CLV
Price: $19.95

Music In Monk Time
Chick Corea and others pay a musical tribute to the late Thelonius Sphere Monk's compositions including 10 selections. 60 minutes.

LDC America, Catalog No.
Linear CLV
Price: $38.95

Gerry Mulligan: Live At Eric
Songs include "17 Mile Drive," "For an Unfinished Woman," "Walk on Water," "North Atlantic Run" and "K-4 Pacific." Recorded on February 26, 1981. 59 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

One Night Stand
Eubie Blake, Kenny Barron in duet with Bobby Hutcherson, Bob James and others. 1981, 98 minutes.

LDC America, Catalog No. 7044-80
Linear CLV
Price: $29.98

Makoto Ozone: Crystal Love
Makoto Ozone (piano), Gary Burton (vibes), Eddie Gomez (bass). 1985, CX encoded, Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Jaco Pastoreous
58 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Oscar Peterson
Songs include "City Lights," "On Danish Shores," "Yesterday," and "My Shining Hour." 56 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Max Roach Live At Blues Alley
Songs include "Mr. High Hat," "Big Sid," "It's Time," and "Back to Basics." Recorded on March 2 1981. 59 minutes.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Sonny Rollins: Montreal 1982

LDC America, Catalog No.
Linear CLV
Price: $29.95

George Shearing At Ambassador Auditorium
Songs include "On A Clear Day," "High and Inside," "Close Enough for Love," "Up a Lazy River," "Concerto for Classical Guitar and Jazz Piano." George Shearing, piano, Angel Romero, guitar, Shelly Manne, drums, and Brian Torff, Bass. 50 minutes.

LDC America, Catalog No. PA-82-022
Linear CAV
Price: $29.95

Mel Torme And Della Reese in Concert
1978

LDC America, Catalog No. 74–009
Linear CLV
Price: $24.95

Grover Washington, Jr. in Concert
With Eric Gale, Richard Tee, and Steve Gadd. Songs include "Just the Two of Us," "Winelight," and "Come Morning." 53 minutes.

LDC America, Catalog No. PA-82–011
Linear CAV
Price: $24.95

Weather Report: Evolutionary Spiral
1981, CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $19.95

Nancy Wilson With The Chick Corea Band
Songs include "I Want to be Happy," "I Get a Kick Out of You," "'Round Midnight," "But Not For Me," "Yesterday," "Them There Eyes," "Take the A Train." 47 minutes.

LDC America, Catalog No.
Linear CLV
Price: $38.95

MUSIC—JAZZ COLLECTIONS

All Star Swing Festival
Ella Fitzgerald, Dave Brubeck, Count Basie, Benny Goodman, Joe Williams, Dizzy Gillespie, Duke Ellington, live from Lincoln Center.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Blue Monday Party
Percy Mayfield, Lowell Fulson and Ester Jones are recorded in concert at Mark Naftalin's Blue Monday Party. Along with the concert are over 200 still frames with a discography, pictures of their albums covers, and archival photos from Living Blues Magazine. This disc can be used in a Level One or Level Two format.

VT Productions
Programmed CAV
Price: $155.00

Jazz On A Summer's Day
Louis Armstrong, Thelonius Monk, Sonny Stitt, George Shearing, Dinah Washington, Gerry Mulli-

gan, Chico Hamilton, Anita O'Day, Jimmy Guiffre, Chuck Berry, Big Mybelle Smith, Jack Teagarden and Mahalia Jackson.

LDC America, Catalog No.
Linear CLV
Price: $52.95

Jazz Vocal Special
Rare footage of 50's television shows including Anita O'Day, Nat King Cole, Louis Armstrong, Cab Calloway, and Helen O'Connell. Songs include "Man That's Groovy," "Got A Penny Benny," "Lonesome Road," "Five Guys Named Mop," and "Thanks for the Boogie Ride." 40 minutes, Black and White. (Monaural sound)

LDC America, Catalog No.
Linear CLV
Price: $38.95

Midnight Session
Milt Jackson (vib), Ray Brown (bass), Cedar Walton (piano), and Mickey Roker (drums) play 15 songs including "In Walked Bud," "Close Enough For Love," "Straight," "No Chaser," "Django," " 'Round Midnight" and "Bag's Groove." 85 minutes.

LDC America, Catalog No.
Linear CLV
Price: $44.95

Modern Jazz Quartet: Again
Songs include "The Cylinder," "Summertime," "Monterey Mist" and "Confirmation." Recorded in concert October 20, 1981 at the Tokyo Budokan. 79 minutes.

LDC America, Catalog No.
Linear CLV
Price: $34.95

Playboy Jazz Festival Volume 1
Willie Bobo, Art Farmer, Maynard Ferguson, McCoy Tyner, Elvin Jones, Lionel Hampton, Red Norvo and Grover Washington. 90 minutes.

LDC America, Catalog No.
Linear CLV
Price: $41.95

Playboy Jazz Festival Volume 2
Dave Brubeck, Ornette Coleman, Weather Report, Manhattan Transfer. 90 minutes.

LDC America, Catalog No.
Linear CLV
Price: $41.95

Prime Cuts
Miles Davis, Chuck Mangione, Al DiMeola, Andreas Vollenwieder, Hiroshima, Clarke/Duke Project, and Weather Report. 1985

LDC America, Catalog No.
Linear CLV (8")
Price: $17.98

MUSIC—MUSICALS

An American In Paris
Gene Kelly, Leslie Caron, Oscar Levant, Georges Guitary. Directed by Vincente Minnelli. Music by George Gershwin. 1951, 102 minutes.

LDC America, Catalog No. ML100006
Linear CLV
Price: $34.95

Annie
Aileen Quinn, Ann Reinking, Geoffrey Holder, Carol Burnett, Albert Finney, Bernadette Peters, Tim Curry. Directed by John Huston. Music and lyrics by Charles Strouse and Martin Charnin. 1981.

LDC America, Catalog No. VLD1030
Linear CLV
Price: $39.95

Babes in Arms
Judy Garland, Mickey Rooney, Charles Winninger. Music by Rogers and Hart, directed by Busby Berkeley. 1939, 91 minutes, B&W.

LDC America, Catalog No. ML100585
Linear CLV
Price: $34.95

Best Little Whorehouse in Texas
Dolly Parton, Burt Reynolds, Dom DeLuise, Charles Durning, Jim Nabors, Lois Nettleton. Directed by Colin Higgins. 1982, 114 minutes.

LDC America, Catalog No. 17-008
Linear CLV
Price: $34.98

Brigadoon
Gene Kelly, Van Johnson, Cyd Charisse. Directed by Vincente Minnelli. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1954, 108 minutes.

LDC America, Catalog No. ML100040
Linear CLV
Price: $34.95

Bye Bye Birdie
Dick Van Dyke, Janet Leigh, Ann-Margret, Paul Lynde, and Bobby Rydell. Music by Charles Strouse and Lyrics by Lee Adams. 1963.

LDC America, Catalog No. 7035–80
Linear CLV
Price: $34.98

Cabaret
Liza Minnelli, Michael York, Joel Grey, Helmut Griem, Fritz Wepper, Marisa Berenson. Directed by Bob Fosse. Music and lyrics by John Kander and Fred Ebb. 1972, 117 minutes.

LDC America, Catalog No. 7035-80
Linear CLV
Price: $34.98

Camelot
Richard Harris, Vanessa Redgrave, David Hemmings. Directed by Joshua Logan. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1967.

LDC America, Catalog No. 11084LV
Linear CLV
Price: $39.98

A Chorus Line
Michael Douglas. Directed by Sir Richard Attenborough, choreographed by Jeffrey Hornaday. CX encoded Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $39.95

Fiddler on the Roof
Topol, Norma Crane, Molly Picon, Leonard Frey. Directed by Norman Jewison. Music and lyrics by Jerry Bock and Sheldon Harnick. 1971, 169 minutes.

LDC America, Catalog No. 4524–80
Linear CLV
Price: $49.98

Finian's Rainbow
Fred Astaire, Petula Clark, Keenan Wynn. Music and lyrics by Burton Lane and E.Y. Harburg. Directed by Francis Ford Coppola. 1968, 141 minutes.

LDC America, Catalog No. 11208LV
Linear CLV
Price: $39.98

42nd Street
Dick Powell, Ginger Rogers, Ruby Keeler, Bebe Daniels, Warner Baxter, Guy Kibbee, Una Merkel. Directed by Lloyd Bacon. Music and lyrics by Harry Warren and Al Dubin. 1933, 89 minutes, B&W.

LDC America, Catalog No. 4502–80
Linear CLV
Price: $29.98

Funny Girl
Barbra Streisand, Kay Medford, Walter Pidgeon, Omar Sharif, Ann Francis. Directed by William Wyler. Music and Lyrics by Jule Styne and Bob Merrill. 1968.

LDC America, Catalog No. VLD3155
Linear CLV
Price: $39.95

Funny Lady
Barbra Streisand, James Caan.

LDC America, Catalog No. 30685A
Linear CLV
Price: $34.95

A Funny Thing Happened on the Way to the Forum
Zero Mostel, Phil Silvers, Jack Gifford, Buster Keaton. Directed by Richard Lester. Music and lyrics by Stephen Sondheim. 1966, 99 minutes.

LDC America, Catalog No. 418–80
Linear CLV
Price: $34.98

Gigi
Leslie Caron, Louis Jourdan, Maurice Chevalier, Hermione Gingold. Directed by Vincente Minnelli. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1958, 115 minutes.

LDC America, Catalog No. ML100050
Linear CLV
Price: $34.95

Grease
Olivia Newton-John, John Travolta, Stockard Channing, Eve Arden, Sha-Na-Na. Music and lyrics by Warren Casey and Jim Jacobs. 1977, 110 minutes.

LDC America, Catalog No. LV1108
Linear CLV
Price: $29.95

Grease II
Maxwell Caufield, Michelle Pfeiffer, Lorna Luft, Adrian Zmed, Didi Conn, Eve Arden, Sid Caesar, Tab Hunter. 1982, 115 minutes.

LDC America, Catalog No. LV1193
Linear CLV
Price: $29.95

Guys and Dolls
Frank Sinatra, Marlon Brando, Stubby Kay, Jean Simmons, Vivian Blaine, Sheldon Leonard. Directed by Joseph L. Mankiewicz. Music and lyrics by Frank Loesser. 1955, 150 minutes.

LDC America, Catalog No. 7039-80
Linear CLV
Price: $39.98

Hair
Treat Williams, John Savage, Beverly D'Angelo. Music by Galt MacDermot and lyrics by Gerome Ragni and James Rado. 1979, 119 minutes

LDC America, Catalog No. 4593
Linear CLV
Price: $34.98

Hello Dolly
Barbra Streisand, Walter Matthau, Michael Crawford, Louis Armstrong. Directed by Gene Kelly. Music and lyrics by Jerry Herman. 1969, 148 minutes.

LDC America, Catalog No. 1101–80
Linear CLV
Price: $39.98

The King and I
Deborah Kerr, Yul Brynner, Rita Moreno, Martin Benson, Terry Saunders, Rex Thompson. Directed by Walter Lang. Music by Richard Rodgers and Oscar Hammerstein II. 1956, 133 minutes.

LDC America, Catalog No. 1004–80
Linear CLV
Price: $34.98

Kiss Me Kate
Directed by Bob Fosse. 1953, 113 minutes.

LDC America, Catalog No. MI100307
Linear CLV
Price: $39.95

The Little Prince
Richard Kiley, Bob Fosse, Gene Wilder, Steven Warner. Directed by Stanley Donen. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1974, 88 minutes.

LDC America, Catalog No. LV8017
Linear CLV
Price: $29.95

Mame
Lucille Ball, Beatrice Arthur, Robert Preston. Music and lyrics by Jerry Herman. 1974, 131 minutes.

LDC America, Catalog No. 111000LV
Linear CLV
Price: $39.98

Mary Poppins
Julie Andrews, Dick Van Dyke, Glynis Johns, David Tomlinson. Directed by Robert Stevenson. Music and lyrics by Richard M. Sherman and Robert B. Sherman. 1964, 139 minutes.

LDC America, Catalog No. 42023AS
Linear CLV
Price: $44.95

Meet Me in St. Louis
Judy Garland, Margret O'Brien, Mary Astor, Tom Drake, June Lockhart, Harry Davenport, Lucille Bremer, Marjorie Main. Directed by Vincent Minnelli. Music and lyrics by Hugh Martin and Ralph Blane. 1944, 115 minutes, B&W.

LDC America, Catalog No. ML100005
Linear CLV
Price: $34.95

The Music Man
Robert Preston, Shirley Jones, Ronny Howard. 151 minutes.

LDC America, Catalog No. 11473LV
Linear CLV
Price: $39.98

My Fair Lady
Audrey Hepburn, Rex Harrison, Stanley Holloway, Wilfred Hyde White, Gladys Cooper, Jeremy Brett, Theodore Bikel. Directed by George Cukor. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1964, 170 minutes.

LDC America, Catalog No. 7038-80
Linear CLV
Price: $39.98

Oklahoma
Shirley Jones, Gordon MacRae, Rod Steiger, Charlotte Greenwood, Gloria Grahame, Eddie Albert. Directed by Fred Zinnemann. Music and lyrics by Richard Rodgers and Oscar Hammerstein II. 1955.

LDC America, Catalog No. 7020-80
Linear CLV
Price: $39.98

Oliver
Oliver Reed, Mark Lester. 1968.

LDC America, Catalog No.
Linear CLV
Price: $34.95

On The Town
Frank Sinatra, Gene Kelly, Ann Miller, Vera-Ellen, Betty Garrett, Jules Munshin. Directed by Gene Kelley and Stanley Donen. Music by Leonard Bernstein, lyrics by Adolph Green and Betty Comden. 1949, 98 minutes.

LDC America, Catalog No. ML100057
Linear CLV
Price: $34.95

Paint Your Wagon
Lee Marvin, Clint Eastwood, Jean Seberg, Harve Presnell, Ray Walston. Directed by Joshua Logan. Music and lyrics by Frederick Loewe and Alan Jay Lerner. 1969, 164 minutes.

LDC America, Catalog No. LV6933-2
Linear CLV
Price: $35.95

Paleface
Bob Hope, Jayne Russell. 1948, Closed Captioned.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Pete's Dragon
Helen Reddy, Jim Dale, Red Buttons, Micky Rooney. CX encoded.

LDC America, Catalog No.
Linear CLV
Price: $45.95

Pippin
Ben Vereen, William Katt, Martha Raye, Chita Rivera. Music and lyrics by Stephen Schwartz. 1981, 110 minutes.

LDC America, Catalog No. PA-82-009
Linear CLV
Price: $34.95

Seven Brides for Seven Brothers
Howard Keel, Jane Powell, Russ Tamblyn. Directed by Stanley Donnen. 1954, 103 minutes.

LDC America, Catalog No. ML100091
Linear CLV
Price: $34.95

1776
Howard da Silva, William Daniels, Ken Howard, Donald Madden, Blythe Danner. 1972.

LDC America, Catalog No.
Linear CLV
Price: $29.95

Singing in the Rain
Gene Kelly, Debbie Reynolds, Donald O'Connor, Jean Hagen, Rita Moreno, Cyd Charisse. Directed by Stanley Donen. Music and lyrics by Arthur Freed and Nacio Herb Brown. 1952, 103 minutes.

LDC America, Catalog No. ML100185
Linear CLV
Price: $35.95

Sound of Music
Julie Andrews, Christopher Plummer, Eleanor Parker, Peggy Wood, Richard Haydn. Directed by Robert Wise. Music and lyrics by Richard Rodgers and Oscar Hammerstein II. 1965, 174 minutes.

LDC America, Catalog No. 1051-80
Linear CLV
Price: $49.98

South Pacific
Rossano Brazzi, Mitzi Gaynor, Ray Walston, France Nuyen. Music and lyrics by Richard Rodgers and Oscar Hammerstein II. 1958, 150 minutes.

LDC America, Catalog No. 7045-80
Linear CLV
Price: $39.98

Swing Time
Fred Astaire, Ginger Rogers, Victor Moore, Helen Broderick, Eric Blore, Betty Furness. Directed by George Stevens. Music by Jerome Kern. 1936, 103 minutes, B&W. This version features a critical commentary on audio track 2 by John Mueller and a photo scrapbook of behind-the-scenes stills.

Voyager Press, Catalog No.
Interactive CAV
Price: $74.95

Thoroughly Modern Millie
Julie Andrews, James Fox. Directed by George Roy Hill. 1967, CX encoded, Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $39.98

Tommy
Ann-Margret, Oliver Reed, Jack Nicholson, Elton John, Tina Turner, Roger Daltrey, Eric Clapton, Keith Moon. Directed by Ken Russell. Music and lyrics by Peter Townsend. 1975.

LDC America, Catalog No. VLD5951
Linear CLV
Price: $29.95

Treasure Island, The Musical
Christopher Cazenove, Frank Gorshin, Bernard Miles. Music by Cyril Ornadel, lyrics by Hal Shaper. 118 minutes.

LDC America, Catalog No. PA-83-062
Linear CLV
Price: $24.95

West Side Story
Natalie Wood, Richard Beymer, Rus Tamblyn, Rita Moreno, George Chakiris. Directed by Robert Wise and Jerome Robbins. Music and lyrics by Leonard Bernstein and Stephen Sondheim. 1961, 150 minutes.

LDC America, Catalog No. 4519-80
Linear CLV
Price: $39.98

The Wiz
Diana Ross, Michael Jackson, Nipsey Russell, Ted Ross, Mabel King, Thelma Carpenter. Music and lyrics by Charlie Small. 1978, 134 minutes.

LDC America, Catalog No. 17-005
Linear CLV
Price: $29.95

Xanadu
Olivia Newton-John, Gene Kelly, Michael Beck. 1980, 97 minutes.

LDC America, Catalog No. 17-006
Linear CLV
Price: $29.95

Yankee Doodle Dandy
James Cagney, Joan Leslie, Walter Huston, Irene Manning, Rosemary DeCamp, Jeanne Cagney, Francis Langford, Richard Wnorf. Directed by Michael Curtiz. Music by George M. Cohan. 1943, 126 minutes. B&W

LDC America, Catalog No. 4513-80
Linear CLV
Price: $39.98

MUSIC—OPERA

Aida
By Giuseppi Verdi. Maria Chiara, Nicola Martinucci, Fiorenza Cossotto, Giuseppe Scandola. Performed at the Arena Di Verona on July 31, 1984, Anton Guadagno conducting. 154 minutes.

LDC America, Catalog No. PA-82-017
Linear CLV
Price: $59.95

Carmen
By Georges Bizet. Placido Domingo, Ruggero Raimondi, Julia Mignes-Johnson. The French National Orchestra and Chorus are conducted by Lorin Maazel, and the film is directed by Francesco Rosi.

LDC America, Catalog No. 85-136
Linear CLV
Price: $49.95

Don Carlo
By Giuseppi Verdi. Performed at the Metropolitan Opera conducted by James Levine. Placido Domingo, Mirella Freni, Grace Bumbry, Louis Quilico, Nicolai Ghiaurov. March 26, 1983. 214 minutes.

LDC America, Catalog No. PA-84-075
Linear CLV
Price: $49.95

Ernani
By Giuseppi Verdi. Teatro Alla Scala. Placido Domingo, Mirella Freni, Renato Bruson, Nicolai Ghiavrov. 138 min.

LDC America, Catalog No. PA-83-060
Linear CLV
Price: $49.95

Falstaff
By Giuseppi Verdi. Royal Opera House, Covent Gardens. Renato Bruson, Katia Ricciarelli, Leo Nucci, Barbara Hendricks. Conducted by Carlo Maria Giulini. 1982, 139 minutes.

LDC America, Catalog No. PA-84-064
Linear CLV
Price: $49.95

Die Fledermaus
By Johann Strauss. Royal Opera House, Covent Gar den. Kiri te Kanawa, Hildegarde Heichele, Dennis O'Neill, Hermann Prey. Conducted by Placido Domingo. 180 minutes.

LDC America, Catalog No.
Linear CLV
Price: $37.50

Der Freischutz
By Karl Maria von Weber. Dresden State Orchestra and Chorus. Rolf Haunstein, Rolf Wolfrad, Ana Pisar, Christine Weidinger, Karl-Heinz Stryczek, Reiner Goldberg, Rolf Tomaszewski, and Gunter Leib with Siegfried Krutz conducting. 135 minutes.

LDC America, Catalog No.
Linear CLV
Price: $41.95

Hansel And Gretel
By Engelbert Humperdinck. This Metropolitan Opera Production is sung in English and features Frederica von Stade, Judith Blegen, and Rosalind Elias. Conducted by Thomas Fulton. Recorded on December 25, 1982.

LDC America, Catalog No. 85-136
Linear CLV
Price: $49.95

H.M.S. Pinafore
By Gilbert & Sullivan. Peter Marshall, Frankie Howard, Meryl Drower, Michael Bulman. 90 minutes.

LDC America, Catalog No. PA-84-067
Linear CLV
Price: $24.95

Idomeneo
By Wolfgang Amadeus Mozart. Metropolitan Opera House. Luciano Pavarotti, Ileana Cotrubas, conducted by James Levine on November 26, 1982. Subtitled in English with Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $49.95

I Lombardi
By Giuseppi Verdi. Teatro Alla Scala. Jose Carreras, Ghena Dimitrova, Silvano Carroli, Carlo Bini, conducted by Gianandrea Gavazzeni.

LDC America, Catalog No.
Linear CLV
Price: $49.95

La Boheme
By Giacomo Puccini. Royal Opera House, Covent Garden. Ileana Cotrubas and Neil Shicoff. February 16, 1982. 116 minutes.

LDC America, Catalog No. PA-82-028
Linear CLV
Price: $49.95

La Boheme
By Giacomo Puccini. Metropolitan Opera House. Teresa Stratas, Jose Carreras, Alan Monk, conducted by James Levine. Taped at the January 16, 1982 performance directed by Franco Zeffirelli. Subtitled in English with Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $49.95

La Fanciulla Del West
By Giacomo Puccini. Royal Opera House, Covent Garden. Placido Domingo, Carol Neblett, and Silvano Carroli. 1982, 140 minutes.

LDC America, Catalog No. PA-83-056
Linear CLV
Price: $49.95

La Traviata
By Giuseppi Verdi. Franco Zeffirelli's film version. Placido Domingo, Theresa Stratas, Cornell MacNeil, Alan Monk, Axelle Gall, Pina Cei, with English subtitles. 1983, 105 minutes. Surround sound encoded.

LDC America, Catalog No.
Linear CLV
Price: $29.98

Lucia Di Lammermoor
By Gaetano Donizetti. Metropolitan Opera conducted by Richard Boyge. Joan Sutherland, Alfredo Kraus, Pablo Elvira, Ariel Bybee. 128 minutes.

LDC America, Catalog No. PA-84-076
Linear CLV
Price: $49.95

The Magic Flute
By Wolfgang Amadeus Mozart. Directed by Ingmar Bergman. English subtitles, Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $39.95

Manon Lescaut
By Giacomo Puccini. Royal Opera House, Covent Garden. Placido Domingo, Kiri te Kanawa. Giuseppi Sinopoli conducting.

LDC America, Catalog No. PA-83-047
Linear CLV
Price: $44.95

The Mikado
By Gilbert & Sullivan. Clive Revill, William Conrad, Stafford Dean, Gordon Sandison and Kate Flowers. Staged by Michael Geliot and Directed by Rodney Greenburg with the London Symphony Orchestra, Alexander Faris conducting. 113 minutes. 1982.

LDC America, Catalog No. PA-83-061
Linear CLV
Price: $24.95

Otello
By Giuseppi Verdi. Arena de Verona. Vladimir Atlantov, Kiri Te Kanawa, and Piero Cappucelli. 1982, 144 minutes.

LDC America, Catalog No. PA-83-054
Linear CLV
Price: $49.95

Peter Grimes
By Benjamin Britten. Royal Opera House, Covent Garden. Jon Vickers 150 minutes.

LDC America, Catalog No. PA-82-008
Linear CLV
Price: $59.95

Pirates Of Penzance
By Gilbert & Sullivan. Peter Allen, Keith Michell, Gillian Knight, Alexander Oliver, and Janis Kelly. Staged by Michael Geliot and Directed by Rodney Greenburg with the London Symphony Orchestra, Alexander Faris conducting. 94 minutes. 1982.

LDC America, Catalog No. PA-83-059
Linear CLV
Price: $24.95

Samson And Dalila
By Camille Saint-Saens. Royal Opera House, Covent Garden. Jon Vickers and Shirley Verrett. 118 minutes.

LDC America, Catalog No. PA-82-014
Linear CLV
Price: $59.95

Tales Of Hoffmann
By Jaques Offenbach. Royal Opera House, Covent Garden. Placido Domingo, Luciana Serra, Agnes Baltsa, Ileana Cotrubas. 159 minutes.

LDC America, Catalog No. PA-81-006
Linear CLV
Price: $59.95

Tannhauser
By Richard Wagner. Metropolitan Opera Production with Richard Cassilly, Eva Marton Eschenbach, John Macurdy. Conducted by James Levine. Recorded on December 15 and 20, 1982 with Digital Sound.

LDC America, Catalog No. PA86159
Linear CLV
Price: $49.95

Tosca
By Giacomo Puccini. Metropolitan Opera Production with Hildegard Behrens, Placido Domingo, Cornell MacNeil and Italo Tajo. Produced by Franco Zeffi-

relli and conducted by Giuseppi Sinopoli. 1985, Digital Sound.

LDC America, Catalog No.
Linear CLV
Price: $49.95

Les Troyens
By Hector Berlioz. Metropolitan Opera Production with Tatiana Troyanos, Jessye Norman, Placido Domingo, Alan Monk, and Paul Plishka. Conducted by James Levine on October 8, 1983. English subtitles.

LDC America, Catalog No.
Linear CLV
Price: $49.95

Un Ballo In Maschera
By Giuseppi Verdi. Metropolitan Opera House Production with Luciano Pavarotti, Katia Ricciarelli, Judith Blegen, Bianca Berini, Louis Quilico. Conducted by Giuseppe Patane. 1980. English subtitles.

LDC America, Catalog No.
Linear CLV
Price: $37.50

Yeoman Of The Guard
By Gilbert & Sullivan. Joel Grey.

LDC America, Catalog No.
Linear CLV
Price: $24.95

MUSIC—ORCHESTRAL
(* Denotes multiple selections on disc)

Bach, J.S.
Vier Ouverturen (Orchestersuiten)
Kammerorchester Berlin, Helmut Koch, conducting. Ballet sequences by Leipzig Opera Company Ballet Troupe. 79 minutes.

LDC America, Catalog No. MC-065
Linear CLV
Price: $28.95

Beethoven, Ludwig Von
***Symphony No. 3 in E flat major Op.55** (Eroica)
NHK Symphony Orchestra, Otmar Suitner, conducting. 52 minutes. Recorded in November of 1980.

LDC America, Catalog No. MC-051
Linear CLV
Price: $29.95

***Symphony No. 5 in C minor, Op.67** (Fate)
Staatskapelle Berlin, Otmar Suitner, conducting. Recorded June 7, 1981 in Japan.

LDC America, Catalog No. MC-044
Linear CLV
Price: $34.95

Symphony No. 6 in F major Op.68 (Pastorale)
NHK Symphony Orchestra, Otmar Suitner, conducting. Recorded in November of 1980. 46 minutes.

LDC America, Catalog No. MC-053
Linear CAV
Price: $29.95

Symphony No. 9 in D minor
Wolfgang Sawallisch, conducting the Czechoslovakia Philharmonic Orchestra. Recorded in June of 1981. 71 minutes.

LDC America, Catalog No. MC-035
Linear CLV
Price: $34.95

***Egmont Overture**
Staatskapelle Berlin, Otmar Suitner conducting.

LDC America, Catalog No. MC-044
Linear CLV
Price: $32.95

***Leonore Overture No. 3 from Opus 72**
Staatskapelle Berlin, Otmar Suitner, conducting. Recorded June 7, 1981 in Japan.

LDC America, Catalog No. MC-044
Linear CLV
Price: $34.95

Bruckner, Anton
•Symphony No. 4 in E flat major (Romantic)
Staatskapelle Dresden, Herbert Blomstedt, conducting. Recorded in July of 1981.

LDC America, Catalog No. MC-045
Linear CLV
Price: $32.95

Dvorak, Antonin
Slavic Dances Zdenek Kosler, conducting. 71 minutes.

LDC America, Catalog No. MC-037US
Interactive CAV
Price: $29.95

Symphony No. 9 in E minor, Op.95 (New World)
Czech Philharmonic Orchestra, Vaclav Neumann, conducting.

LDC America, Catalog No. MC-036
Linear CLV
Price: $27.95

Symphony No. 9 in E minor Op.95 (New World)
NHK Symphony Orchestra, Otmar Sawallisch conducting. Recorded in April of 1980. 46 minutes.

LDC America, Catalog No. MC-052
Interactive CAV
Price: $28.95

Mozart, Wolfgang Amadeus
•Symphony No. 35 in D major K.285 (Hafner)
Staatskapelle Berlin, Otmar Suitner conducting.

LDC America, Catalog No. MC-044
Linear CLV
Price: $32.95

Schubert, Franz
•Symphony No. 8 in B minor (Unfinished)
Staatskapelle Dresden, Herbert Blomstedt conducting.

LDC America, Catalog No. MC-045
Linear CLV
Price: $32.95

Smetana, Bedrich
My Fatherland (Ma Vlast)
Czech Philharmonic Orchestra, Vaclav Neumann conducting.

LDC America, Catalog No. MC-034
Linear CLV
Price: $29.95

Stravinsky, Igor
The Soldier's Tale (L'Histoire du soldat)
This is an animated version of the Stravinsky work by R.O. Blechman who is a noted cartoonist for the New Yorker magazine. It features voices of Max Von Sydow, Dusan Makavejew, and Andre Gregory. Music is performed by the Los Angeles Chamber Orchestra conducted by Gerard Schwarz. 56 minutes.

LDC America, Catalog No.
Linear CLV
Price: $31.45

MUSIC—SOLO/ENSEMBLE

Ayako, Nakamura
Nakamura Ayako on piano performing Pictures at an Exhibition by Modest Mussorgsky.

LDC America, Catalog No.
Interactive CAV
Price: $29.95

Callas, Maria
The Maria Callas Concerts 1959, 1962—This disc contains three concert appearances, two from Hamburg, Germany. Nicola Rescigno and Georges Pretre conduct excerpts from Massenet's "Le Cid", Bizet's "Carmen", and Verdi's "Ernani."

LDC America, Catalog No.
Linear CLV
Price: $49.95

Chuchro, Josef
Josef Chuchro performing the Cello Concerto in B Flat, Opus 104 by Antonin Dvorak. Vaclav Neumann conducting the Czechoslovakian Philharmonic.

LDC America, Catalog No.
Interactive CAV
Price: $29.95

Horowitz, Vladimir
Horowitz in London—Royal Opera House, June 1983. Includes Chopin, Scarlotti Sonatas, Schumann's Scenes from Childhood and Rachmaninoff. 116 minutes.

LDC America, Catalog No. PA-82-031
Linear CLV
Price: $29.95

Pavarotti, Luciano
Pavarotti in London—Royal Albert Hall, April 13, 1982. Royal Philharmonic Orchestra. Includes arias from Tosca, Macbeth, L'Elisir D'Amore, and Turandot. 51 minutes.

LDC America, Catalog No. PA-83-043
Linear CLV
Price: $29.95

Perlman, Itzhak
Itzhak Perlman—Philharmonia Orchestra, Carlo Maria Giulini conducting. Beethoven Violin Concerto in D, Opus 61. 45 minutes.

LDC America, Catalog No. PA-83-042
Linear CLV
Price: $24.95

Rostropovich, Mstislav
Rostropovich—Dvorak Cello Concerto, and Saint-Saens Cello Concerto # 1. London Philharmonic Orchestra, Carlo Maria Giulini conducting. 65 minutes.

LDC America, Catalog No. PA-82-024
Linear CLV
Price: $24.95

Ensembles
The Met Gala—The one-hundredth anniversary concert at the Metropolitan Opera House features close to one hundred of the worlds leading singers, seven conductors, the Met Orchestra, Chorus and Ballet performing in two separate programs. "The Met Gala" recalls some of the most brilliant arias and ensembles of the repertory, performed against a backdrop of five Met productions. 1983.

LDC America, Catalog No.
Linear CLV
Price: $49.95

ORNITHOLOGY

Audubon Society Guide: Birds Of North America
The National Audubon Society has used the unique features of the laserdisc to catalog the sights and sounds of the 116 species of North American birds on one videodisc. The celebrated editor of Audubon's bird guide books, John Farrand, Jr. was the editor for this disc that was written, directed and narrated by naturalist Michael Godfrey. After an introduction by Roger Tory Peterson, the disc boasts a collection of spectacular moving footage and color photographs from many of the great nature photographers, including Eliot Porter, Crawford Greenewalt, and Alfred Eisenstaedt.

Interactive CAV
Software: None available
Instant Replay
Price: $35.95

PHOTOGRAPHY

The Creative Camera
This disc is a participative disc which enables one to learn more about 35mm single lens reflex (SLR) cameras. It describes technical terms and techniques and reviews the do's and don't's of good photography. Audio track #1 features instructions for the beginner, audio track #2 is for the more advanced photographer.

1—The Camera
2—The Lens

3—Film
4—Light
5—Exposure
6—Accessories
7—Photographing People
8—Photographing Sports & Action
9—Photographing Scenes & Travel
10—Special Effects

Five photo assignments include: Glamour, San Francisco Houses, Vintage Cars, Wildflowers and Rodeo.

Interactive CAV
Software: None available
LDC America—Catalog No. HP-019
Price: $29.95

PHYSICAL EDUCATION—SELF-DEFENSE

The World Of Martial Arts
This is a complete course on two levels. Audio track one provides explicit instructions to the moves shown on the screen, while audio track two contains more advanced information. Many of the world's foremost practitioners are teachers on this disc. An added feature is the philosophy behind the Al Thomas system of Budojujutsu.

Interactive CAV
Software: None available
LDC America—Catalog No. 37-605
Price: $29.95

PHYSICAL FITNESS—EXERCISE

Aerobicise: The Beginning Workout.
1982, 96 minutes.

LDC America, Catalog No. LV2312
Linear CLV
Price: $29.95

Aerobicise: The Beautiful Workout.
Loryanna Catalano, Deborah Corday, Tina Rocca. 113 minutes.

LDC America, Catalog No. LV2308
Linear CLV
Price: $29.95

Aerobicise: The Ultimate Workout.
Two Self-contained classes. 1982, 105 minutes.

LDC America, Catalog No.
Linear CAV
Price: $29.95

Jazzercise
Judi Sheppard Missett is the instructor for this disc that uses many styles of popular music to exercise to. The disc allows the user to set a routine that is suited to individual needs. The disc uses the dual audio capabilities of the laserdisc.

LDC America, Catalog No. 32-608
Linear CAV
Price: $24.95

Muscle Motion
Featuring the men of Chippendales. 1983, 57 minutes.

LDC America, Catalog No. PA-83-049
Linear CAV
Price: $24.95

PHYSICAL FITNESS—RELAXATION

The Joy of Relaxation
The disc contains two complete relaxation routines. One for indoors, and one for outdoor environments. Step-by-step instructions teach the user how to relax.

LDC America, Catalog No. 37-604 Linear CAV
Price: $29.95

PHYSICAL FITNESS—RUNNING

Jim Fixx On Running
Tips on all aspects of running are contained on this disc, hosted by Jim Fixx. 53 minutes.

LDC America, Catalog No. 32-007
Linear CLV
Price: $24.95

PHYSICAL FITNESS—YOGA

Yoga Moves with Alan Finger
A complete workout with Alan Finger for rejuvenating the mind and body. 59 minutes.

LDC America, Catalog No. 30-002
Linear CLV
Price: $29.95

REFERENCE MATERIALS

Knowledge Disc
The first videodisc encyclopedia, Knowledge Disc, contains the entire 9 million words of Grolier's highly acclaimed Electronic Encyclopedia. This is comparable to a full 20 volume encyclopedia set. Stepping through the frames of the disc "turns the pages" of this "book." Knowledge Disc contains arrange, quantity and diversity of topics that will satisfy most research needs. The information can be easily and quickly accessed using the scan, search and step functions of the videodisc player. The encyclopedia is in a text-only format with no motion audio or visuals.

Interactive CAV
Software: None available
Grolier Electronic Publishing, Inc.
Price: $89.95

The Video Encyclopedia Of The 20th Century
(See History)

SCIENCE—ANTHROPOLOGY

Ninety-Six: A Cattle Ranch In Northern Nevada
This disc describes the operation of a beef cattle ranch in Humbolt County, Nevada. Side A of the disc is interactive with motion footage and 2,400 still frames of ranches, churches, clubs, and other sites in the area. Motion segments include;

Fall roundup
Drive
Branding
Animated maps
Use of wattles to identify cattle

Side B is a linear presentation using different audio on tracks one and two. The side presents personal-experience anecdotes from ranch workers and examines the role of Native Americans on the ranch.

An 84-page companion booklet contains a complete index to the disc that is geared to college level Anthropology or Folklore courses.

Hardware Requirements:

Pioneer PR-7820-3 or the LD-V6000 player.

Programmed CAV/CLV
Software: Level 2 encoded on disc
Library of Congress
Price: $172.00 for disc booklet and shipping

SCIENCE INSTRUCTION—BIOLOGY

Animals Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher's guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include;

Unit One—Vertebrates
1—Mammals
2—Birds
3—Fishes
4—Amphibians

Unit Two—Invertebrates
1—Arthropods
2—Mollusks

Unit Three—How Animals Grow and Behave
1—Life cycle
2—How animals reproduce
3—Social behavior

Unit Four—How Animals Survive
1—Animals respond to climates and seasons
2—Animals and danger

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).

Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3 Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

Bio Sci
This disc is a generic videodisc with a slide bank of over 6,000 color images covering many areas of biology. An image directory assists in quickly locating a given image. Areas covered are; Protozoology, Histology, Invertebrate Zoology, Plant Taxonomy, Entomology, Ecology, Ichthyology, Cell Biology, Herpetology, Developmental Biology, Ornithology, Biochemistry, Mammalogy.

Software packages available March 1, 1984;
#1—Protein Synthesis, Predator-Prey, Mendelian Genetics, and Fertilization & Development.
#2—Adaptive Illusion, Invertebrates, Insects, Amphibians, Arthropods, Reptiles.
#3—Steppe Biome, Wet Coniferous Forest Biome, Mt. St. Helens, Plant Diversity.
#4—Gymnosperms, Fungi, Angiosperms.
#5—Reptiles, Birds, Animal Diversity, Fishes, Mammals.

Programmed CAV
Software: Written for Apple II and IBM-PC jr.
Videodiscovery, Inc.
Price: $495.00 for disc. $75.00 per software program. $300.00 for the set of five programs.

Interactive Videodisc Science Instruction Project

Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

Lesson 1. Respiration
The videodisc is used to simulate laboratory apparatus which allows the student to subject an organism to different temperatures and pressures. The student can project how respiration will be effected by these variables and observe the organism to see if the predicted outcome was correct.
Lesson 2. Climate and Life
The student observes the characteristics of different climatic environments on earth, and studies the plant and animal life of each environment. predictions must then be made as to the types of organisms that would likely be found in a given environment. Students must construct climatograms of those environments.
Hardware Requirements
Pioneer LD-V1000 player
Pioneer SIA interface
2—color television monitors

Option #1
Apple II, II+ or IIe (48K)
CP/M 2.0 or greater—slot independent
16K RAM card—slot 0 (II, II+)
Serial Interface Card—slot 2
80 column board—slot 3

Option #2
IBM-PC (64K)
Serial Interface Card
RS232 cable

Programmed CAV
Software: Written for IBM-PC and Apple
GPN
Price: $425.00 for disc with manual and software.

Life Cycles
This disc is a comprehensive visual database for reproductive biology. Developed in cooperation with Oxford Scientific Films, this disc presents a stunning visual record of how life begins, in motion picture and still frame images with nearly 4,000 color images, graphic illustrations, and footage from sixteen films. Comes with Image Directory. Disc contents includes:
- Plants—How insects pollinate plants; fruit formation; germination of a bean plant; dissection of flower parts; pseudo copulation of wasps with orchids; flies and stink plants; Sexual Encounters of the Floral Kind.
- Protozoa—How single cell organisms reproduce through cell division; reproduction of Volvox through new colony formation; sexual reproduction in Paramecia.
- Invertebrates—Mating and reproduction in earthworms and snails; developmental forms in starfish, sea urchins, squid, octopus; octopus and their eggs; insect larval forms; ant queens/termite queens; serial chamber construction by solitary bees; Digger wasp burrows; nest-building of Paper and Mud-dauber wasps; praying mantis reproduction; metamorphosis, emergence of moths, Monarch butterfly.
- Fish—Courtship, spawning, egg laying in Brown trout; nest-building and courting of the Stickleback; territorial display, nesting, reproduction of the Siamese Fighting Fish; egg laying, embryonic development, hatching, and mouth-brooding of the cichlid.

• Amphibians—Complete documentation of frog reproduction, mating, egg laying, embryo development; the unique brood pouch of the marsupial frog; mating of the crested newt; nesting and egg laying of the salamander.
• Reptiles—Egg laying, embryonic development, hatching of sea turtles including their march to the sea; hatching of snake eggs, showing the egg-tooth snakes grow and discard when out of the shell.
• Birds—Nesting, courtship, hatching, care of young in a wide variety of bird species, including the ostrich, flamingo, penguin, wren, swift, gull, Redtail hawk, Golden Eagle, Bald Eagle, osprey, and prairie chicken; the "claim- jumping" cuckoo bird; complete embryonic development and hatching of a chicken.
• Mammals—With emphasis on live birth, this section explores territorial behavior, mating, reproduction, and care of young in elephant seals, sheep, dogs, horses, and zebras, cattle and sheep, cheetahs, lions, elephants, field mice, house mice.
• Histology/Dissections—Tissue sections of normal human reproductive organs, including cross-sections of the complete organs, ovaries, endometrium, placental tissues, testes, and seminiferous tubules; close-up tissue sections of substructures.
• Models & Drawings—Three-dimensional models of in-depth understanding of cell division, mitosis, reproductive parts of plants, embryonic development, male/female reproductive organs, human birth.

Interactive CAV
Software: None available
Videodiscovery, Inc.
Price: $495.00

Life Science I
This is the first of two Life Science discs in the Living Textbook
Series by Optical Data Corporation.

Programmed CAV
Software: Available for the Apple II
Optical Data Corporation
Price: $400.00

Life Science II
This is the second of two Life Science discs in the Living Textbook Series by Optical Data Corporation.

Programmed CAV
Software: Available for the Apple II
Optical Data Corporation
Price: $400.00

Math In Biology
(See Mathematics)

Plants Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher's guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include;

Unit One—Plants and Their Parts
1—Roots
2—Stems
3—Leaves
4—Flowers
5—Seeds

Unit Two—How Plants Survive
1—What Plants Need
2—How plants make food

Unit Three—How Plants Grow
1—How plants reproduce
2—Life cycles

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

Videodisc In Science Education
This disc, produced under and NSF grant, contains two segments of materials. The first segment, an Executive Review, consists of primarily motion that reviews the need for improved science education and looks at the development and evaluation of the materials contained in the second section.

The second section, Biology Course Material, contains about 15 minutes of motion and 2,500 still frames in the area of developmental biology.

Necessary Hardware
Pioneer PR-7820, or LD-V6000.

Programmed CAV
Software: Digital dump on disc (level 2)
WICAT Education Institute
Price: $75.00

Whales
The Whales disc is a 24 minute program on whales that was prepared as a prototype for use in grades 3-8. It can be used as a 24 minute presentation, as four six minute lessons or as a text-and-image data base. Still-frame sequences with text provide supplemental information; video glossary defines basic terms; on-screen questions and games test the students' knowledge.
The disc offers closed captions for the hearing impaired.

Interactive CAV
Software: None available
National Geographic Society
Price: $97.50 for disc and complete user's guide (add $6.25 for postage and handling)

SCIENCE INSTRUCTION—BOTANY

Exotic Plants: A Videodisc Compendium
(See Horticulture)

SCIENCE INSTRUCTION—CHEMISTRY

Chemistry For Biologists
This 2 videodisc, 20 lesson course teaches elements and compounds, bonding, the major elements of life, equilibrium, classes of organic compounds (their composition and properties), diffusion in gasses and liquids, and water and hydrogen bonds.

Interactive CAV
Software: None available Systems Impact, Inc.
Price: $1,200.00

INTERACTIVE VIDEODISC SCIENCE INSTRUCTION PROJECT
Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

Lesson 1. Titration
The videodisc is used to simulate titration experiments with all the necessary equipment. The student has control of the variables in each experiment allowing for thousands of possible titration experiments.

Lesson 2. Unknowns
The student is asked to determine the chemicals used to obtain a given reaction. Hundreds of chemical reactions are available for the student to view permitting the student to observe how known chemicals react with each other.

Hardware Requirements
Pioneer LD-V1000 player
Pioneer SIA interface
2—color television monitors

Option #1
Apple II, II+ or IIe (48K)
CP/M 2.0 or greater—slot independent
16K RAM card—slot 0 (II, II+)
Serial Interface Card—slot 2
80 column board—slot 3

Option #2
IBM-PC (64K)
Serial Interface Card
RS232 cable

Programmed CAV
Software: Written for IBM-PC or Apple
GPN
Price: $425.00 for disc with manual and software.

Standard Heats Of Solution
An interactive general chemistry pre-laboratory experiment at the college freshman level. The program contains self-evaluation quizzes, and remedial segments.
Hardware Requirements:
Pioneer PR-7820

Programmed CAV
Software: Level 2 encoded on disc
UCLA Instructional Media Library
Price: $150.00

SCIENCE—EARTH SCIENCE

Earth Science
The 4 videodisc, 30 lesson Earth Science minicourse explains much of the earth, ocean and atmosphere through convection. The course begins with the concepts that underlie convection: matter, temperature, density and pressure. The course then covers geology of the earth: plate tectonics (formation and structure), subduction zones, volcanoes, earthquakes and mountain building, weathering of rocks and the rock cycle; meteorology: atmosphere, rain and clouds, large scale movement of air masses, violent storms; and oceanography: major features, wind driven circulation and coastal updwelling.

Interactive CAV
Software: None available
Systems Impact, Inc.
Price: $2,400.00

SCIENCE—METEOROLOGY

Weather Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher's guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include;

Unit One—Weather Instruments
1—Measuring air temperature
2—Measuring air pressure

Unit Two—Wind
1—Air circulation
2—Wind direction
3—Wind speed

Unit Three—Air Masses
1—Describing air masses
2—Air masses on the move

Unit Four—Water Cycle
1—Evaporation
2—Condensation
3—Precipitation

Unit Five—Clouds
1—Cloud types
2—Storms

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

SCIENCE INSTRUCTION—PHYSICS

AAPT Physics Slides Videodisc
Thirteen of the American Association of Physics Teachers most popular 35-mm slide sets (199 slides in all) are now available on a single videodisc. An Instructor's Manual containing the teacher's guide for each slide set accompanies the videodisc.
The following slide sets are featured:
- PASCO's Drawings of Famous Physicists (SL-23)
- Nineteenth Century Textbook Illustrations (SL-20)
- Atmospheric Phenomena I and II (SL-4 & SL-5)
- Bently's Snow Flakes and Ice Crystals (SL-6)
- Stop-Action Photography (SL-35)
- Bursting Projectile (SL-7)
- Equilibrium Examples (SL-12)
- Non-Commutivity of Angular Displacements (SL-21)
- Light on Campus (SL-15)
- Total Internal Reflection and the Multimode Optical Fiber (SL-41)
- Dislocations (SL-8)
- Skylab Set (NASA Set)

Interactive CAV
Software: None available
American Association of Physics Teachers
Price: $45.00

Energy Course—Interactive Science Series
This is one part of a four-part Science series by Health EduTech, Inc.. This course is geared to students in grades 4, 5 and 6. The package includes

three videodisc sides, 30 student workbooks, 30 sets of unit tests, one teacher's guide, glossary, explanation of symbols, description of additional activities, and floppy disks (for level 3 use). The system can be configured for level 2 or level 3 use. Lessons include:

Unit One—What is Energy?
1—Energy defined
2—forms of energy

Unit Two—The Sun's Energy
1—Heat Energy
2—Light energy

Unit Three—Chemical Energy
1—What is chemical energy?
2—Using chemical energy

Unit Four—Electrical Energy
1—What is electrical energy?
2—Using electrical energy

Unit Five—Nuclear Energy
1—Nuclear Energy

Necessary Hardware
Level 2—Pioneer LD-V6010 videodisc player.
Level 3 (IBM)—IBM-PC or compatible (256K) with 2 disk drives, color-graphics adaptor with 25-pin connector, asynchronous communications adaptor, Pioneer LD-V6010 or 6000 videodisc player, Health EduTech's IVC-1 interface cable, and a monitor with NTSC/RBG key capabilities (Sony PVM 1271Q, Zenith ZVM-1350 modified, Sanyo Spectra Tech 31C426 modified).
Level 3 (Sony)—The Sony View System with 512K memory.
Level 3 (NCR)—NCR system with Pioneer LD-V1000 videodisc player.

Programmed CAV
Software: Provided either as level 2 or level 3
Health EduTech, Inc.
Price: $1,500.00 ($4,995.00 for all four courses)

The Puzzle Of The Tacoma Narrows Bridge Collapse
This disc introduces students to the physics of wave motion and resonance. Three levels or tracks of instruction are available on the disc. Five instructional units offer both experiments and actual footage of the bridge collapse.
Ch.1—Introduction to the Player. This explains the use of the Pioneer PR-7820 (level 2) player in interactive instruction.
Ch.2—Tacoma Narrows Bridge Collapse. Eyewitness reports make up the narration for this live footage that is not otherwise available.
Ch.3—Influence of the Wind. Lab experiments are used to recreate actual conditions.
Ch.4—Importance of Physical Properties. Live film and lab experiments demonstrate the principles of physics needed to understand the collapse.
Ch.5—Conclusion.

Programmed CAV
Software: Encoded on disc (level 2)
John Wiley & Sons, Inc.
Price: $150.00

Interactive Videodisc Science Instruction Project
Developed by Nebraska Videodisc Group for the Corporation of Public Broadcasting and Annenberg School of Communications.

Lesson 1. Studies in Motion
The student is shown video segments of dance, diving and gymnastics to study motion. Linear momentum, angular momentum, gravitational potential energy, center of mass, and moment of inertia can be determined through equations.

Lesson 2. Energy Transformation
Through the use of different bicycles, the student can calculate conservation of energy, the effects of friction, wind resistance, tire inflation, and mass of the rider.

Hardware Requirements:
Pioneer LD-V1000 player, Pioneer SIA Interface, IBM-PC (64K), Serial Interface Card, RS232 cable, Video Associates Labs Microkey System, One color monitor

Programmed CAV
Software: Written for IBM-PC
GPN
Price: $425.00 for disc with manual and software.

Frames Of Reference
Various motions viewed from inertial and noninertial frames of reference are presented in this videodisc, which vividly demonstrates the appearance of fictitious forces.

For use with Apple II+ or IIe computers and Pioneer PR-8210, LD-1100, VP-1000, Magnavox VC-8010, or Sylvania VP-7200 videodisc player with the Optical Data VAI-135 interface.

Programmed CAV
Software: Written for Apple II+ or IIe
Central Scientific Company
Price: $210.00 with program, $165.00 for disc alone.

Photons And Interference Of Photons
The first part of the disc shows an experiment with very weak light, and demonstrates that even weak light can eject electrons without delay, suggesting that radiant energy comes in packages. The second part demonstrates that even very weak light, which was shown to carry energy like a particle, produces interference patterns characteristic of waves.

For use with Apple II+ or IIe computers and Pioneer PR-8210, LD-1100, VP-1000, Magnavox VC-8010, or Sylvania VP-7200 videodisc player with the Optical Data VAI-135 interface.

Programmed CAV
Software: Written for Apple II+ or IIe
Central Scientific Company
Price: $250.00 with program, $195.00 for disc alone.

Physics And Automobile Collisions
This disc features slow motion footage of automobile collisions for the study of momentum. This data base of visual information focuses on Newton's Laws and mechanical energy. Students can still frame the disc and measure distances on the television screen and collect collision data for simulated experiments.

Necessary Hardware
Pioneer LD-V6000.

Programmed CAV
Software: Level 2 encoded on disc
John Wiley and Sons, Inc.
Price: $150.00

SCIENCE INSTRUCTION—SPACE SCIENCES

Space Archive Volume 1, Space Shuttle
This disc contains an audio-visual documentation of the space shuttle STS 5,6 and 7 missions. The program features the following events;
- Solid Rocket Booster staging, freefall, parachute deployment, splashdown and recovery.
- Flight deck views of re-entry
- On-orbit launch of communications satellites.
- Space walks of Story Musgrave and Don Peterson.
- Deployment and retrieval of the SPAS pallet satellite, including remote video views of the Shuttle from SPAS.
- Housekeeping, Shuttle style, including techniques for shaving, eating and sleeping in zero gravity.
- Still photo collection of mission activities and out-the-window views of the Earth.
- Comments by Commanders Vance Brand and Paul Weitz, and Mission Specialists Joe Allen, Sally Ride and John Fabian.

Interactive-CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 2, Apollo 17 Mission To Taurus Littrow
This disc takes the viewer to the surface of the moon with the first exploration team ever to set foot on it. This disc is a must for the science classroom to see the effects of low gravity on a planet. Live footage and stills of the lunar surface, and the astronauts performing their experiments are contained on the disc.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 3, Mars And Beyond
This disc is unique in the series of space discs in that it includes footage in 3-D. Two pairs of 3-D glasses are provided with the disc. Side one documents the Viking mission to Mars with over 500 photos and 20 minutes of video (14 minutes in 3-D). Mission photos from Voyager document the planets of Jupiter and Saturn. Side Two includes a 25 minute film "Voyager" that was produced by the Jet Propulsion Lab.

Interactive CAV
Software:—None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 4, Space Archive Special Edition Shuttle Downlink: The Repair Of Solar Max
This disc has live footage and still frames of the latest Shuttle mission. The disc has excellent color pictures with superb clarity of the astronauts walking in space

as well as in the weightless cabin. The disc has some of the best blast-off footage to date. The disc also features more prompts for the viewer to take advantage of the interactive nature of the medium.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Archive Volume 5, Greetings From Earth
This disc has over 2,700 video still frames including more than 1,500 color composite Landsat images. The Landsat images make up an atlas of the U.S. and other international points of interest. Also included is a twenty-page image directory and a reference map of the U.S. providing descriptions and viewing aids. Dozens of video clips and two music videos with music by Tangerine Dream comprise the rest of the disc.

Interactive CAV
Software: None available
Video Vision Associates, Ltd.
Price: $39.95

Space Disc 1—Voyager
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The discs come with a reference manual and image directory.

- General information movies
- Computer generated mission profile movies for Jupiter, Saturn, Uranus and Neptune encounters
- Spacecraft development and assembly
- Descriptions and results of all 11 experiments
- 16 data animation movies of the rotation of Jupiter, the Red Spot, Saturn and Saturn's rings
- Comprehensive coverage of the imaging science experiment, prepared by Dr. Reta Beebe
- Physical data, scale and USGS topographic maps (when available) for each object encountered
- Single-concept programming segments, such as the Deep Space Network, MTIS image display system
- Galileo mission profile movie
- Includes the Space Archive Volume 3 disc

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $360.00 for two discs

Space Disc 2—Apollo
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The discs come with a reference manual and image directory.

- Approximately 10,000 NASA photos of the Apollo 11, 12, 13, 14, 15, 16 and 17 missions
- Astronaut training
- Spacecraft preparation
- Mission and recovery
- "Onboard" photographs shot by the astronauts
- Movie highlights of each mission
- Launching and docking sequences
- Out-the-window views from lunar orbit and during descent and EVA activity
- Includes the Space Archive Volume 2 disc

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $360.00 for 2 discs

Space Disc 3—Shuttle
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The discs come with a reference manual and image directory.

- Approximately 3,400 NASA photos of the STS development
- Onboard photography from STS 1, 2, 3 and 4
- Developmental movies, including approach and landing tests and propulsion test firing
- Engineering movies, including launch, ET separation
- Out-the-window views of launch and landing
- Staging views from orbit, cargo bay, manipulator arm experiments and cabin interior
- Landing video from chase planes
- Includes Space Archive Volume 1 and the Space Archive Special Edition Shuttle Downlink discs

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $400.00 for 3 discs

Space Disc 4—The Sun
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document

outer space and this country's exploration of the space frontier. The disc comes with a reference manual and image directory.
- Photo archive of more than 2,100 images that captures every aspect of solar research
- Solar spectrum from 3000 to 12500 angstroms
- Solar features at different wavelengths
- Observable layers
- Comets, aurorae and eclipse expeditions
- Movie clips of sunspots, prominences, flares, solar rotations (in H alpha, magnetograms, X-rays), the sunspot cycle, eclipse time lapse, the corona during totality and terrestrial aurorae
- Coverage of AS & E, Big Bear, Kitt Peak, Mt. Wilson, Sacramento Peak, Skylab and Solar Max
- The 28-minute award-winning NASA film UNIVERSE

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price: $320.00

Space Disc 5—Astronomy
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The disc comes with a reference manual and image directory.
- Pictorial glossary of all solar system bodies
- Planetary exploration by spacecraft
- Cosmogony and comparative planetology still images and movie clips
- Motion of sky from Earth, including star trails, retrograde motion, seasons and lunar phases
- Collection of solar stills
- Movie clips of sunspots, prominences, flares, rotation and eclipse
- Photographs of observatories and collections from their public files and archives
- Glossary of deep sky objects
- Movie clips of big bang, animation of stellar evolution, pulsars and black holes

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price:—$400.00

Space Disc 6—Earth Science
The Center for Aerospace Education at Drew University, in cooperation with NASA Education Services put this series of discs together that document outer space and this country's exploration of the space frontier. The disc comes with a reference manual and image directory.
- Terrestrial geoscience, including plate tectonics volcanism, surface features and rock studies
- Lunar sample and meteorite studies
- Comparative planetology, including crater studies, surface mapping of terrestrial-like bodies
- U-2 high-altitude photography, including 100 largest American cities
- Gemini, Apollo, Skylab, Apollo/Soyuz Earth-looking photography
- Comprehensive LANDSAT coverage, including the USA Alaska, selected global regions, seasons comparisons and special mosaics
- Imaging radar studies from Seasat and STS 2
- Advanced analysis and mapping techniques

Programmed CAV
Software: Written for Apple IIE
Video Vision
Price:—$400.00

Planetary Image Videodisc
This disc is a reference archive of 100,000 black and white still frames of planetary images from the Jet Propulsion Laboratory.

Interactive CAV
Software: None available
National Technical Information Service
Price: $50.00 catalog #PB83-223131 (American Express, Master Card and Visa accepted)

Selected NASA-JPL Mission Video Images
This disc is a reference archive of black and white and color planetary images from the Jet Propulsion Laboratory.

Interactive CAV
Software: None available
National Technical Information Service
Price: $50.00 catalog #PB83-223123 (American Express, Master Card and Visa accepted)

Spacewatch—CAV Home Planetarium
This is a bilingual disc that includes a full directory of the disc images.

Side One:
The Solar System
Birth of the sun, Formation of the Planetary System, Mariner 10 Mission to Mercury, Animation: Surface

conditions of Venus, Soviet Venera Mission to Venus, Viking Expedition to Mars, Olympus Mons, Phobos and Demos, Jupiter and Satellites, Uranus, Neptune, Pluto and Charon, Halley's Comet

Side Two: The Stars
Polaris, Orion, Sirius, Gemini, Taurus, Betelgeuse, The Norsehead Nebula, Orion Nebula, Trapezium, Rigel, Pleiades, Aldebaran and the Hyades, Crab Nebula, Castor and Pollux, Eskimo Nebula, Canis Major, Rosette Nebula in Monoceros, Deneb, The Black Hole in Cygnus X-1, Veil Nebula, Vega, Altair, Globular Clusters, The Galactic Center in Sagittarius, Trifid Nebula, Andromeda Galaxy, Arcturus, From Sputnik to the Space Shuttle

Interactive CAV
Software: None available
Instant Replay
Price: $44.95

SOCIAL STUDIES

The Lost Civilization Expedition
This interactive videodisc program is designed to help intermediate level students find lost study skills including building vocabulary, taking notes, understanding graphic information, using reference material, and outlining skills. Students sift through the many levels of their "archeological dig" to record important facts about King Tut's tomb, the Mayan Civilization, the Trojan horse and the buried city of Pompeii. The package includes one videodisc, four Apple diskettes with back-ups, a teacher's manual, and several teaching aids.

Required Hardware
Apple II+ or IIe (48K) computer, Pioneer LD-V4000 videodisc player, and an Allen MVP interface.

Programmed CAV
Software: Provided for Apple II+ or IIe
Society for Visual Education, Inc.
Price: $299.00

SPECIAL EDUCATION—SIGN LANGUAGE

Deaf Awareness: Let Your Fingers Do the Talking
This disc is designed to teach sign language to communicate with the hearing impaired. The videodisc, along with a support manual, includes both instructional and testing segments on the manual alphabet, simple numbers, word signs and phrases. The disc captures the crucial elements of motion that are otherwise difficult to convey through the conventional method of learning from a series of still photographs. The program combines the benefits of personal instruction with feedback to provide the most advanced and effective methods of teaching the communication skills of sign language.

Programmed CAV
Software: Program encoded on disc (level 2)
Hardware: Sony LDP-1000
ACCESS Alberta
Price: $225.00

SPECIAL TOPICS

Discursions
This disc is a sample of different applications for the videodisc technology. Each of the 16 demonstrations in Discursions is organized into a chapter that contains a slide show, a motion video segment, and digitally encoded text from relevant publications. These demonstration segments range in length from 40 seconds to seven minutes, and are located on both sides of the disc. Content of the chapters is outlined below.

Side One
Chapter 1—Table of contents and introduction to the disc.
Chapter 10—Interactive Movie Map (Aspen). This is a dynamic, interactive map, based on videodisc technology, which the viewer uses to take a simulated drive through an unfamiliar space.
Chapter 11—Movie Manual. This section demonstrates how the technology might be used as an electronic book.
Chapter 12—Communication News. This section simulates a personal electronic newspaper.
Chapter 13—Desk File. Desk file explores electronic mail.
Chapter 14—Talking Heads. Three-dimensional projections with sound-sync and dynamic spatial correspondence are explored.
Chapter 15—Zero Bandwidth Video. Several teleconferencing techniques are explored.
Chapter 16—Lip Sync. Experiments in lip sync techniques.
Chapter 17—Caricature Generator. This program uses a computer to create caricatures.

Side Two
Chapter 20—Phone Slave. This section demonstrates a personalized telecommunications system that works with voice and electronic mail messages.

Chapter 21—Put That There. A voice and gesture interactive system.
Chapter 22—Graphical Marionette. This section explores a method of capturing human motion.
Chapter 23—Archfile. A visual database of 5,000 records of American architecture.
Chapter 24—Picassofile. A visual database of 700 Picasso works stored by style, period, location and subject.
Chapter 25—Viewpoint Dependant Imaging. This section simulates viewing a three-dimensional environment.
Chapter 26—Stereoscopic Workspace. This chapter explores the use of a three-dimensional digitizer.
Chapter 27—Facemaker. This section demonstrates the use of videodisc for creating composite faces from a catalog of facial features. Chapter 30—Disc Design. An overview of the disc.
Chapter 31—Digital Data. Description of how the data sections of the disc were created.
Chapter 32—Bibliography.
Chapter 33—Mapping by Yourself (Do-It-Yourself Aspen). This section allows the user to create an interactive mini-movie map with Aspen footage.
Chapter 34—ArcMan in Action (24 Hours at the 'Mac). This is a documentation of one day at the Architecture Machine Group terminal garden in still-frames.
Chapter 35—ArcMac Slidathon. A collection of over 3,000 still images.

Interactive CAV
Software: None available
Architecture Machine Group
Price: $100.00

Frame Up
This disc is presented as the first interactive videodisc-based fiction. This is a disc that stresses strategy and making decisions. The package consists of one double-sided videodisc, a floppy diskette, and a user manual.

The scenario is about Eddy, who is locked in a department store at night. The user must make the right decisions at the right times in order to get Eddy out of trouble and prove his innocence. The store is under electronic surveillance via 10 video cameras hooked up to videotape recorders. Clever manipulation of the control room equipment will be of invaluable assistance in getting out of the trap.

Necessary Hardware
IBM-PC, XT, or AT (128K) with RS232C port and one disk drive, and a Pioneer LD-V6000 or LD-V6010 videodisc player.

Programmed CAV
Software: Included
IMEDIA International, Inc.
Price: $199.00

TELEVISION

Photo Store
One of America's top photo agencies, UNIPHOTO Picture Agency, of Washington, D.C. and Meta Media Systems, Inc., have combined to produce the Photo Store, a distinctive video and communications tool. Tens of thousands of high quality color transparencies covering the entire range of contemporary stock photography are contained on this disc.

Direct processing from the videodisc means that no external time base corrector is needed to produce a broadcast quality image. One annual licensing fee allows the use of any image for editorial video production, and many photos are released and available for commercial use on a per use basis.

The disc comes with a full color catalog/index so images can be found quickly with any videodisc player. Image Search software for the IBM-PC computers is available.

Programmed CAV
Software: Available with IBM-PC computers
Picture Management Systems
Price: $

VOCATIONAL EDUCATION—BANK TELLER TRAINING

NCR Basic Teller Training
This is a two-day, self-paced, interactive videodisc training package, using touch-screen technology. It includes the fundamental skills and procedures common to all financial institutions. It is generic in nature: not dependent on a specific banking software application, nor is it designed for a particular bank. The course is designed for the student having little or no knowledge of teller functions. The package includes two one-sided videodiscs, three floppy diskettes, and administrator's/installation guide, and a student manual. Side one is preparatory, and introduces the user to basic concepts. Side two requires performance. Through simulation, the user interacts with "customers" from the videodisc, performs various customer transactions, and then balances the day's transactions using the teller worksheet. The content includes:

Side 1
Module A: Using The System; Identifying Coin (Sample Lesson)
Module B: Coin And Currency; Identifying Currency, Counting Currency, Packaging Coin, Strapping Currency, Counterfeit Money, Mutilated Money, Drawer Limits
Module C: Bank Services; Account Types, Safe Deposit Boxes
Module D: Checks And Negotiables; Negotiable or Not, Check Negotiability, Endorsements, Customer ID's, Check Numbers
Module E: Documents; Teller Stamp, Deposit and Withdrawal, Guaranteed Negotiables, Certified Checks, Redeeming Bonds, Cash in and Cash Out, Miscellaneous Checks
Module F: Debits And Credits; Debit/Credit Items, Balancing Debits/Credits

Side 2
Module G: Transactions; Cash Deposit, Non-Cash Deposit, Split Deposit, Less-Cash Deposit, Loan Payment, Cashing Checks, Withdrawals
Module H: Teller Procedures; Night Depository, ATM's, Buying/Selling Cash, Completing the Teller Worksheet, Out of Balance
Module I: Final Test (Your First Day As A Teller)
Module J: Customer Relations

Necessary Hardware
NCR InteracTV System

Programmed CAV
Software: Provided
NCR Interactive Videodisc Services
Price: $

VOCATIONAL EDUCATION—COMPUTER REPAIR

Guru Course
How To Determine The Problem Component in a Multi-Vendor SNA Systems Network Architecture. SNA, is now synonymous with IBM data communications environments. However, increasing numbers of IBM users are adding non-IBM products (terminals, protocol converters, modems, multiplexers, and software) to their overall SNA systems. This course teaches the user to locate the problem component using a GTF or line monitor trace (a procedure relevant to multi-vendor as well as all-IBM environments).

The course consists of six to eight hours of instruction. The package includes one videodisc, two diskettes, course workbook, student notes, and a reference manual.

Hardware requirements
IBM-PC computer or equivalent, Pioneer LD-V6000 videodisc player, Videoswitch unit, or Sony View system.

Programmed CAV
Software: Provided
TCT Technical Training, Inc.
Price: $2,400.00

VOCATIONAL EDUCATION—ELECTRONICS

Basic Electronics
This is part one of a four-part Basic Electronics curriculum. This nine-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in electronics. An optional lab pack, with a Measurement Trainer, experiments workbook, and parts kit are available. Included in this package are two videodiscs and one barcoded workbook. Course content includes:
- Electronic Quantities and Testing Principles
- Multimeters and Bridge-Type Instruments
- Oscilloscopes
- Signal Generators
- Component Testing

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
Price: $1,000.00 (approx.)

Electronic Circuits
This is part two of a four-part Basic Electronics curriculum. This fourteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in

electronics. An optional lab pack, with a Measurement Trainer, experiments workbook, and parts kit are available. Included in this package are two videodiscs and one barcoded workbook. Course content includes:

- Review of Electrical Quantities
- Component Characteristics and Circuits
- Resonant Circuit Characteristics
- Resonant Circuit Applications
- Rectifiers and Power Supplies
- Amplifiers
- Oscillators
- Pulses, Waveshaping, and Pulse Generators
- Logic Circuit Fundamentals
- Introduction to Number Systems
- Logic Devices and Diagrams and Circuit Applications
- Digital Types of Integrated Circuits

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
Price: $1,000.00 (approx.)

Basic Troubleshooting In Electronic Systems
This is part three of a four-part Basic Electronics curriculum. This twenty four-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require a basic understanding of electronic components and their measurement. This course provides an ideal foundation for more advanced courses in electronics. An optional lab pack, with trainers, experiments workbooks, and parts kit are available. Included in this package are two videodiscs and one barcoded workbook. Course content includes:

- Introduction to Troubleshooting
- Methods of Troubleshooting
- Using Symptoms Diagnosis to Localize a Unit
- Isolating Trouble to a Circuit
- Locating the Defective Component
- Soldering and Desoldering Techniques
- Testing Power Supply Failures
- Input/Output Devices
- Oscillators/Multivibrators
- Digital Circuits
- Amplifiers

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
Price: $1,000.00 (approx.)

Advanced Troubleshooting In Electronic Systems
This is part four of a four-part Basic Electronics curriculum. This thirty eight-hour course is designed for maintenance personnel, field service technicians, instrumentation technicians, and others who require an understanding of advanced troubleshooting procedures and test equipment. An optional lab pack, with trainers, experiments workbooks, and parts kit are available. Included in this package are two videodiscs and one barcoded workbook. Course content includes:

- Troubleshooting Mechanical Problems
- Troubleshooting Power Supplies
- Grounding Problems
- Troubleshooting Linear Circuits
- Troubleshooting Microprocessors and Peripherals
- Symptom Analysis and Diagnosis
- Preventive Maintenance Techniques
- Efficient Maintenance and Repair
- Diagnosis by System Analysis
- Signal Generators and Other Instruments
- Troubleshooting Practice Problems
- Printed Aids to Troubleshooting
- Failure-Rate Analysis
- Industrial Power Control
- Testing Industrial Linear Devices
- Analyzing Industrial Systems
- Commonsense Approach

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included
Deltak
Price: $1,000.00 (approx.)

Electrical/Electronic Skills
This training program takes the learner beyond the concepts presented in the ELECTRICAL/ELECTRONIC THEORY course. The program covers six distinct subject areas that are devoted to the training of practical, maintenance-related skills as applied to industrial electrical/electronic maintenance procedures and situations. The seventeen lessons included in the program are designed for training entry-level personnel and for providing remediation in selected areas to

experienced individuals. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seventeen lessons include the following topics:

1—The Oscilloscope
2—The Multimeter
3—The Wheatstone Bridge, Megohmmeter, and Clamp-On Ammeter
4—Ladder Diagrams
5—Wiring, Single Line, and Building Electrical Diagrams
6—Electrical Control Equipment: Switches, Coils, and Overload Relays
7—Electrical Control Equipment: Limit Switches
8—Electrical Control Equipment: Fuses and Molded Case Circuit Breakers
9—Electrical Control Equipment: Motor Starters
10—Troubleshooting Electrical Control Circuits
11—AC Motors: Theory and Routine Testing
12—AC Motors: Maintenance
13—AC Motors: Variable Speed Motor Theory and Maintenance
14—DC Motors: Theory and Maintenance
15—Protective Relays
16—Switchgear: Bus Work and Circuit Breakers
17—Switchgear: Circuit Breaker Testing and Maintenance

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $12,995.00 ($850.00 per lesson)

Electrical/Electronic Theory
This training program covers two distinct subject areas that are devoted to the training of electrical/electronic theory, concepts, and applications. The seven lessons included in the program are designed for introducing entry-level trainees to industrial related electrical/electronic concepts for the first time, and for providing remediation in the theoretical foundation of the craft to experienced individuals. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—AC/DC Theory: Ohm's Law and DC Circuits
2—AC/DC Theory: Characteristics of AC Circuits
3—AC/DC Theory: Three-Phase AC Systems
4—Solid-State Theory: Semiconductors and Diodes
5—Solid-State Theory: Rectifiers and Filters
6—Solid-State Theory: Transistors, SCR's, and Triacs
7—Introduction to Digital Electronics

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)

VOCATIONAL EDUCATION—MATHEMATICS

Applied Industrial Mathematics
This training program is an applications-oriented program that focuses on the math skills that are actually used on the job. The eight lessons included in the program cover the topics from basic skills such as whole number operations to more advanced operations such as geometry, algebra, and trigonometry. Both analytical problem-solving skills and computation skills are taught using realistic job-related problems. The program is designed for training industrial craft skills workers from all industries. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The eight lessons include the following topics:

1—Whole Number Operations
2—Fractions
3—Decimals
4—Percent, Ratio and Proportion, Graphs
5—Positive and Negative Numbers, Powers and Roots
6—Algebra: Using Common Industrial Formulas
7—Measurement/Unit Analysis
8—Geometry and Trigonometry: Length, Area, Volume and Angle Calculations

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided Industrial Training Corporation
Price: $6,495.00 ($850.00 per lesson)

Fundamental Study Skills: Mathematics
This program is a series of four modules that builds practical skills step-by-step from whole numbers through introductory algebra. The learner needs only number recognition skills to enter the program. Each of the four modules in the fifty-hour program is an independent, self-contained course. A student may take one, or all of the modules; skills are determined by objective-based pre-testing. A mastery test at the end of each module verifies that the student is ready to proceed to the next.
The package contains two videodiscs, four workbooks, Pre-test, and an Objective-based Mastery Testing Course Management System. Course content includes:

Module 1: Whole Numbers
- The Language of Numbers
- Place Value
- Adding Whole Numbers
- Subtracting Whole Numbers
- Multiplying Whole Numbers
- Dividing Whole Numbers
- Solving Problems

Module 2: Fractions
- Understanding Fractions
- Adding Fractions
- Subtracting Fractions
- Multiplying Fractions
- Dividing Fractions
- Fractions and Mixed Numbers

Module 3: Decimals
- Understanding Decimals
- Working with Decimals
- Adding and Subtracting Decimals
- Multiplying Decimals
- Dividing Decimals
- Percents

Module 4: Introduction to Algebra
- Positive and Negative (Signed) Numbers
- Adding and Subtracting Signed Numbers
- Multiplying and Dividing Signed Numbers
- Algebraic Representation and Terms
- Powers and Exponents
- Order of Operations
- Equations and Statements
- Operations with Statements

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software—Included Deltak
Price: $1,000.00 (approx.)

VOCATIONAL EDUCATION—MECHANICAL TECHNOLOGY

Industrial Hydraulics
This sixteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require an understanding of basic hydraulics. This course provides an ideal foundation for more advanced courses on mechanical maintenance. It can be used to cross-train electrical/electronics maintenance personnel whose job performance would benefit from a basic knowledge of hydraulics. Included in this package are two videodiscs and one barcoded workbook. Course content includes:
- Principles of Hydraulics; Introduction to Hydraulics, Hydraulic Pressure, How Hydraulic Power Works, Pressure Gauges
- The Hydraulic Power System; Basic Components and Accessories, Symbols, Hydraulic Circuits
- Hydraulic Fluids; Properties of Hydraulic Fluids, Common Hydraulic Fluids, Storage, Handling, and Maintenance
- Hydraulic Piping, Fittings and Connections; Piping Materials, Piping Specifications, Fittings and Connections
- Hydraulic Pumps; The Hydraulic Pump, Gear Pumps, Vane Pumps, Piston Pumps, Pump Servicing
- Hydraulic System and Pump Accessories: Power Source, Fluid Reservoirs, Filters and Strainers, Heat Exchangers
- Pressure Control Valves; Relief Valves, Holding Valves, Sequence Valves, Pressure-Reducing Valves, Pressure Switches
- Flow and Directional Control Valves and Accumulators; Flow Control Valves, Directional Control Valves, Accumulators
- Actuators; Hydraulic Cylinders, Hydraulic Motors, Rotary Actuators
- Maintenance and Safety of Hydraulic Systems; Maintenance Practices, Changing Hydraulic Fluids, Reservoir Maintenance, Heat Exchanger Maintenance, Pump Maintenance, Maintenance Safety
- Troubleshooting Hydraulic Systems; Where to Start, Loss of System Pressure, Actuator Malfunction, Overheating

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included Deltak
Price: $1,000.00 (approx.)

Industrial Pneumatics
This sixteen-hour course is designed for maintenance personnel, production technicians, engineers, instrumentation technicians, and others who require an understanding of basic pneumatics. This course provides an excellent foundation for more advanced courses on mechanical maintenance. It can be used to cross-train electrical/electronics maintenance personnel whose job performance would benefit from a basic knowledge of pneumatics. Included in this package are one videodisc and one barcoded workbook. Course content includes:
- Basic Principles of Pneumatics; Properties of Air, Measuring Air Pressure and Flow
- Pneumatic Systems and Components; Basic Pneumatic Controls, Graphic Symbols
- Compressors; Types of Compressors, Positive Displacement Compressors, Non-Positive Displacement Compressors
- Fluid Conditioners; Filters, Air Dryers, Lubricators, Regulators, Trio Units
- Pneumatic Controls; Pressure Control Valves, Flow Control Valves, Directional Control Valves
- Pneumatic Actuators; Air Cylinders, Air Motors
- Maintenance and Troubleshooting of Pneumatic Systems; Compressors, Filters, Lubricators, Air Dryers, Control Valves, Actuators, Systems

Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included Deltak
Price: $1,000.00 (approx.)

Rotating Equipment Predictive Maintenance And Alignment
This training program is an applications-oriented program that focuses on the necessity of predictive maintenance of rotating equipment. The seven lessons included in the program are designed to introduce mechanics to the concepts of predictive maintenance in order to identify and reduce potential problems. Various procedures for performing alignment are also presented. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—Principles and Practices of Predictive Maintenance
2—Vibration Analysis
3—Lubricant and Trend Analysis
4—Techniques for Extending Bearing Life
5—Principles of Reverse Double Dial Alignment
6—Reversal Double Dial Alignment Procedure
7—Computerized and Laser Alignment

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)

VOCATIONAL EDUCATION—READING

Fundamental Study Skills: Reading
This program is a series of five modules designed to upgrade reading and comprehension skills to the grade 9 level as a foundation for subsequent training. The learner needs only a grade 3 equivalent skill level to enter the program. Each of the five modules in the forty-hour program is an independent, self-contained course. A student may take one, or all of the modules; skills are determined by objective-based pre-testing. A mastery test at the end of each module verifies that the student is ready to proceed to the next. The package contains two videodiscs, five workbooks, Pre-test, and an Objective-based Mastery Testing Course Management System. Course content includes:
Module 1: Basic Skills
- Dictionary Skills
- Context Clues
- Prefix, Suffix and Root

How to Read Charts and Diagrams
Module 2: Literal Comprehension/Main Ideas
- The Topic Sentence
- The Definitive Paragraph
- The Descriptive/Explanatory Paragraph
- The Introductory/Summary Paragraph
- How to Spot Printing Clues

Module 3: Literal Comprehension/Relationships
- Classification Comparison/Contrast
- Analogy
- Sequence/Procedure
- Cause/Effect

Module 4: Inference
Thinking Skills
Inferring the Main Idea
Inferring Relationships
Drawing Conclusions
Using Judgment
Module 5: Study Skills
Using Outlines and Charts to Organize Information
Summarizing Good Study Techniques
Problem-solving
Necessary Hardware
IBM InfoWindow, the Visage System, Sony View System, JVC Interactive Learning System, or the Action Code System.

Programmed CAV
Software: Included Deltak
Price: $1,000.00 (approx.)

VOCATIONAL EDUCATION—SECRETARIAL SKILLS

Make The Telephone Work For You
Initial contact with an organization often takes place on the telephone, thus an organization's image and reputation rely on the staff's ability to effectively handle calls. This three-part course addresses the importance and necessity of creating the right impression on the telephone. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

Module 1—Creating the Right Impression on the Telephone
- Importance of creating the right impression
- Having the right attitude and manner
- Servicing a call/importance of the first contact
- Overcoming the limitations of the phone
- Speaking clearly/making the most of your voice
- Capitalizing on words and tone
- Need for accuracy in conveying information
- Importance of note taking/conveying of messages
- Knowing about your own organization/accessing further information
- Assisting the telephone receptionist

Module 2—Using the Telephone
- Answering /greeting/getting the caller's name and using it
- Progressing a call/transferring a call/handling a call for someone who is out
- Dealing with inquiries and taking them to the next stage
- Getting and giving information
- Remaining positive and efficient
- Calls of personal or confidential nature
- Ending calls on the right note
- Efficient use of your time and your caller's time
- Identifying objectives and preparing what to say
- Choosing the best time to call
- Leaving messages

Module 3—Dealing with Difficult Calls
- Handling wrong numbers, crossed lines, noises on the line, being cut off
- Handling complaints and objections
- Questioning techniques
- Offering the caller alternatives
- Using the caller's name effectively
- Dealing with different types of caller: vague, aggressive, rude, or complaining
- Dealing with distractions in the office

Necessary Hardware
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included MindBank, Inc.
Price: $1,995.00 per module

Writing For Results
Acquiring the skills to write successful business letters and memos is essential to the individual and the organization. This course is designed to help the user understand and apply the basic concept of effective business writing in a disciplined approach.

Module 1—The Basics
- Writing for results
- Letters as ambassadors of your organization
- Memos as ambassadors of you
- Other types of business writing
- Analyzing effects on readers
- Understanding the reader's concerns
- What your reader wants from you
- The pros and cons of telephoning/conversing/meeting
- When writing is required
- Recognizing mistakes
- Why people make mistakes
- Clarifying your purpose
- Considering your reader
- Organizing your ideas
- Choosing appropriate language
- Making it readable

Module 2—Planning Your Writing
- Knowing what you want to achieve
- What is an objective?

- Ordering objectives
- What you should know about the reader
- Making the right assumptions
- Why readers react as they do
- Listing your points
- Getting the facts
- The main subject
- Importance of conciseness
- Testing for relevance
- The structure of writing
- Inductive vs. deductive
- Choosing the best sequence: chronological, spatial, functional, order of complexity, order of importance
- What should happen next?
- Make it easy for the reader

Module 3—Writing with Style
- What is style?
- Written word and the reader
- What is tone?
- Writing tone through words
- Choosing your words
- Being concise
- Using familiar words
- When to use jargon
- Keeping sentences short
- Unity and complexity
- Useless phrases
- What is a paragraph
- Topic and length
- Beginnings and endings
- Punctuation
- Pausing and clarifying
- Simplifying commercial jargon
- Activating the passive tense
- How to edit your own writing
- Layout hints
- Final checklist

Module 4—When the Going Gets Tough
- Writing to persuade
- When to persuade
- Being pleasant
- Arguing your case
- Stressing the benefits
- Making your point
- Writing to complain
- The tone
- Defining the problem
- Suggesting a solution
- Keeping alternatives open
- Meeting justified complaints
- Being timely
- Admitting fault
- Being constructive
- Giving satisfaction
- Dealing with unjustified complaints
- In the interest of public relations
- The issue of fault
- Legal implications
- Getting payment
- The second letter
- The final step

Necessary Hardware
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank, Inc.
Price: $1,995.00 per module

VOCATIONAL EDUCATION—STATISTICAL PROCESS CONTROL

Statistical Process Control
This training program is an applications-oriented program that focuses on the role of the control chart as a powerful tool in monitoring quality. The seven lessons included in the program are designed to introduce shop floor operators, supervisors, and technical personnel to the techniques of SPC. The package includes one videodisc per lesson, one set of floppy disks per lesson, five copies of the User Materials per lesson, one copy of the Instructor materials, and one Course Administration Utility floppy disk. The seven lessons include the following topics:

1—Introduction to SPC
2—Introduction to Control Charts
3—Control Charts for Variables
4—Control Charts for Attributes
5—Advanced Control Charts
6—Machine and Process Capability
7—Problem Solving Techniques

Necessary Hardware
Visage V:STATION 2000 system.

Programmed CAV
Software: Provided
Industrial Training Corporation
Price: $5,595.00 ($850.00 per lesson)

TELEMARKETING

Make the Telephone Sell for You
Many organizations are making increasing use of the telephone as a sales medium. Telephone sales staff must be adequately trained to maximize the effective-

ness of telemarketing. This course is designed for those learning to use the telephone to sell, and is also suitable as a refresher course. Each module requires one to two hours to complete. The learner is placed into real-life situations and required to react to the problems presented.

Module 1—Communicating over the Telephone
- Creating the right impression
- Attending to attitude/manner/voice
- Answering promptly
- Being Prepared
- Overcoming the limitations of the phone
- Using descriptive, decisive, concise language
- Avoiding jargon
- Attending to emphasis and pitch
- Obtaining feedback
- Preventing defensiveness
- Making the most of incoming calls
- Gaining information to make sales
- To sell up, on, or across
- Turning a complaint into a further sale

Module 2—Planning your Telephone Sales Tactics
- Building a data bank
- Knowledge of your customer's business, your products and services, and your competition
- Product knowledge based on customer application
- Sources of information/how to obtain
- Keeping customer records
- Managing outgoing calls
  Updating records
  Following leads
  Identifying the decision maker
  Planning when to call
- Structuring a call
  Using a call planner
  Planning objectives/the approach/key presentation points
  Choosing an approach
- Types of calls
  Cold calls
  routine sales calls
  calls to resolve problems
  after sales calls

Module 3—Making a Telephone Sales Presentation
- Preparing a presentation
- Identifying needs
- Stressing benefits
- Using only one or two key selling points
- Using testimonials
- Carrying out the presentation
  Getting through to the decision maker
  Presenting in four stages
  Generating interest by the approach
  Identifying needs by probing
  Relating benefits to needs by matching
  Obtaining understanding and agreement by confirming
  Using feedback
- Obtaining agreement by a series of positive statements
  Handling price
  Presenting the benefits before price
  Emphasizing quality and value

Module 4—Dealing with Objections and Difficult Customers
- Handling problem customers
- Talkative type: use echo technique
- Silent type: use open questions
- Buying bully: handle firmly
- Timid/indecisive types: build their confidence
- Stubborn type: use strong presentation
- Dealing with objections in two stages: handling and answering
- Preempting objections
- Using seeming-to-agree and boomerang techniques
- Uncovering concealed objections
- Handling non-genuine objections
- Answering standard objections

Module 5—Closing a Telephone Sale and Follow-Up
- Knowing when to close on the phone
- Picking up buying signals
- Using questions
- Types of close
- Asking the direct question
- Giving two choices
- Using assumptive close
- Using a concession
- Getting a series of agreements
- Rules after closing
- Checking for understanding
- Providing for a follow-up
- Analyzing performance if the call fails
- Follow-up calls to:
  Check for problems
  Sell a repeat order
  Try another presentation after a failed call
  Give advance warning
- Responding to danger signals

Necessary Hardware
The Learning Center or the IBM InfoWindow

Programmed CAV
Software: Included
MindBank, Inc.
Price: $1,995.00 per module

APPENDIX G. DIRECTORY OF VIDEODISC MASTERING OPTIONS

VIDEODISC SHARING

APh Technological Consultants
55 North St. John Avenue
Pasadena, CA 91103
(818) 796-0331

Comsell, Inc.
500 Tech Parkway
Atlanta, GA 30313
(404) 872-2500

International Interactive Communications Society (IICS)
2120 Steiner Street
San Francisco, CA 94115
(415) 922-0214

3rd Wave Media Consultants
1600 Notre Dame, Suite 206
Montreal, Quebec Canada, H3J 1M1
(514) 932-9885

SMALL VOLUME VIDEODISC MASTERING

Crawford Communications
535 Plasmamour Drive
Atlanta, GA 30324
(800) 831-8027
(404) 876-7149

LaserVideo, Inc.
One East Wacker Drive
Chicago, IL 60601
(312) 467-6755

Spectra Image
540 North Hollywood Way
Burbank, CA 91505
(808) 842-1111

LARGE VOLUME VIDEODISC MASTERING FACILITIES

Pioneer Video, Inc.
5150 East Pacific Coast Highway, #300
Long Beach, CA 90804
(213) 498-0300

Sony Video Communications
Sony Drive
Park Ridge, NJ 07656
(201) 930-1000

Technidisc
2250 Meijer Drive
Troy, MI 48084
(313) 435-7430

3M Optical Recording Project
223-5S 3M Center
St. Paul, MN 55144
(612) 733-4435

Comparison of Mastering CostsSet Up Costs Per Disc Side (12″)

Company	CAV	CAV+	CLV
Pioneer	$2,100.00	$2,400.00	$2,400.00
Sony	$2,000.00	$2,000.00	$2,000.00
Technidisc	$1,800.00	$2,400.00	$2,400.00
3M	$1,800.00	$2,500.00	$2,500.00

Cost Per Disc

Company	Qty	CAV 1sd	CAV 2sd	CAV+ 1sd	CAV+ 2sd	CLV 1sd	LV 2sd
Pioneer	1000	$10	$15	$14	$19	$14	$19
	1000	$ 7	$12	$10	$15	$10	$15
Sony	249	$19	$30	$19	$30	$19	$30
	499	$18	$26	$18	$26	$18	$26
	999	$16	$25	$16	$25	$16.	$25.
	1999	$15.	$24.	$15.	$24	$15	$24
	2999*	$14	$23	$14	$23	$14	$23
Technidisc	49	$18	$23	$18	$23	$18	$23
	199	$16	$21	$17.5	$22.5	$16	$21
	499	$14	$19	$17	$22	$14	$19
	999	$12	$17	$16.5	$21.5	$12	$17
	1499	$11	$16	$16	$21	$11	$16
	1999	$10	$15	$15	$20	$10	$15
3M	99	$18	$23	$18	$23	$18	$23
	499	$14	$20	$18	$23	$14	$20
	999	$12	$17	$18	$23	$12	$17
	1999	$10	$15	$15	$21	$10	$15
	2499	$ 9	$13.5	$12	$17.	$ 9	$13.5
	2999	$ 8.25	$12.75	$12	$17	$ 8.25	$12.75
	4999	$ 8.25	$12.75	$10.5	$10.5	$ 8.25	$12.75
	5000+	$ 8	$12	$10	$10	$ 8	$12

+ CAV with digital programming
* No set up charge for discs without digital programming

Set Up Costs Per Disc Side (8")

Company	CAV	CAV+	CLV
Pioneer	$1,500.00	$1,800.00	$1,800.00
3M	$1,500.00	$1,800.00	$1,800.00

Cost Per Disc

Company	Qty	CAV 1sd	CAV 2sd	CAV+ 1sd	CAV+ 2sd	CLV 1sd	LV 2sd
Pioneer	1000	$ 7.5	$ 9.5	$10	$12	$10	$12
	1000	$ 6.5	$ 8	$ 8	$10	$ 8	$10
3M	99	$10	$14	$12.5	$14	$10	$14
	499	$10	$14	$12.5	$14	$10	$14
	999	$10	$14	$12.5	$14		$14
	1999	$ 8.5	$12.5	$12.5	$14	$ 8.5	$12.5
	2499	$ 7.5	$11.25	$10	$14	$ 7.5	$11.25
	2999	$ 7	$10.75	$10	$14	$ 7	$10.75
	4999	$ 7	$10.75	$ 8.75	$13	$ 7	$10.75
	5000+	$ 6.75	$10	$ 8.25	$12.5	$ 6.75	$10

+ CAV with digital programming
* No set up charge for discs without digital programming

APPENDIX H. DIRECTORY OF AUTHORING LANGUAGE DISTRIBUTORS

AUTHORING LANGUAGES

Aimtech Corporation
Maestro Authoring System

- Runs on the following computers with mouse:
  IBM-PC
  Digital VaxStation
  Sun Microsystem/3
  Wang Advanced Professional Computer
  Sony KTX1350 Intelligent Workstation
- Icon-based menus
- "Symbolic Authoring" technique for building flow charts
- Course can be "run" from any location within the structure
- Pull down windows
- Multiwindowing with Sun and Vaxstation
- No arbitrary limits on interactivity or branching
- Supports graphic overlay
- Graphics editor included
- Frame capturing available

Price: $5,000.00

Allen Communications
Quest—Authoring System

- Runs on the IBM-PC and AT&T 6300 computers
- Menu-driven system
- Prompts displayed at all times
- No knowledge of programming necessary
- Capable of dot-by-dot color graphics
- Quick creation of shapes and animation, advanced text video and audio features
- True/false, multiple choice, and fill in the blank formats available
- Unequalled range of branching capabilities
- Student data management options
- Student feedback options
- Simple set of commands
- Lessons easily modified
- Manual with tutorials provided
- Allows the use of touch screens, light pens, and key pads

Price:
$1,295.00 includes license for one development station and one delivery station

Applied Data Research, Inc.
Adroit Authoring System

- Runs on the IBM-PC computer
- Menu-driven system
- Supports graphic overlay
- Graphics editor included
- True/false, multiple choice, multiple right, multiple wrong, short answer, and close but wrong (for spelling errors) inputs
- 30 response judges per screen, up to 72 characters in length for short answer
- Record keeping included
- Screen capture
- Easy to edit and change
- Music and voice feedback
- Supports lightpen
- Optional mouse support

Price: $5,500.00

BDC Associates
The Instructor Authoring System

- Runs on the Apple II computer
- Menu-driven system
- Student record keeping

Price: $395.00

Computer Teaching Corporation
TenCORE Authoring System

- Runs on IBM-PC computers
- Fully prompted menu-driven system
- No programming experience necessary
- True/false, multiple choice and open ended question judging
- User defined character sets can implement special symbols, graphics or logos
- Sophisticated feedback capabilities offer added flexibility
- Answer judging includes spelling, letter case, and word order
- Student record keeping
- Graphics overlay supported
- Supports mouse, light pen and touch screen
- Optional APPLE Student Executer will run IBM TenCORE programs on the APPLE II family of computers

- Optional Computer-Managed Instruction System for extensive student record keeping and management options

Price:
$2,000.00 for TenCORE Authoring System
$2,000.00 for TenCORE Computer-Managed Instruction System
$250.00 for TenCORE Assistant (authoring aid)
$2,000.00 for TenCORE Apple Student Executer

Comware Incorporated
KSS Author, Authoring System

- Runs on IBM-PC or compatible computers
- Window-level authoring system
- No menu structures to slow the advanced user
- Free form branching structures for a variety of student input from simple menu selections to sophisticated answer-judging
- Graphics editor included
- Screen capture included
- Student record keeping
- Graphic overlay supported
- Touch screen supported

Prices:
$2,995.00 Annual system license
$5,995.00 Perpetual system license

Datamed
Videodisc Authoring System

- Runs on the IBM-PC computer
- System commands use English-like syntax
- Judging includes true/false, multiple choice, key word or phrase searches
- Source text files included to allow customizing of commands
- Input devices supported include light pens, touch screens, graphic overlay devices, barcode readers, magnetic stripe readers, and mouse devices
- No extra fees or licensing

Price: $295.00

Edudisc
Mentor/MacVideo Authoring System

- Runs on the Apple Macintosh computer
- Macintosh icon-based menus
- High resolution graphics
- Relational format for open-ended lessons
- Full windowing
- "Student Summary" feature evaluates student performance

Price: $595.00

Global Information Systems Technology, Inc.
Accord Authoring System

- Authoring and delivery on the AT&T 3B line of computers
- Delivery on AT&T PC6300 and IBM-PC computers
- Uses the TUTOR authoring language
- Full color graphic capabilities
- Full judging features for user input analysis
- Utilizes extended ASCII code for text and graphics
- Supports touch, mouse and other external devices
- Linkage to other programming languages
- Interfaces to native hierarchical file facilities
- User-defined font sets
- Graphics overlay supported

Price: $5,000.00

Interactive Training Systems
Authority—Authoring System

- Runs on IBM-PC computers
- No programming expertise necessary
- Menu-driven system
- Provides second-generation authoring capability
- Supports video and text-based course development
- Includes competency-based educational formats
- 20 touch-sensitive, lightpen-sensitive or keyboard-sensitive areas are definable
- Medium or high resolution graphics editing included
- Supports graphic overlay
- Sophisticated student record management included
- Supports light pen and touch screen

Price: $3,000.00

International Business Machines Corp.
Learning System/1—Authoring System

- Runs on the InfoWindow System
- Menu-driven system
- Supports touch screen and mouse
- Supports the integration of graphics from existing packages
- Administrative Utility supports student data collection
- Supports graphic overlay
- Supports windowing

- Supports synthesized speech
- Variety of text fonts and sizes
- LS/1 Presentation System is available for lesson delivery

Prices:
$5,000.00 for LS/1 Authoring System
$125.00 for LS/1 Presentation System

J.A.M., Inc.
JAM Discwriter Course Authoring System

- Runs on the IBM-PC computer
- Menu-driven system
- No programming knowledge necessary
- User's guide gives step-by-step instructions
- Online testing and record keeping capabilities
- Prints management reports
- Menu based system

Price: $159.00

Learncom
SAM Authoring System

- Runs on the IBM-PC and compatible computers
- All commands are prompted
- Full-screen editing for text and graphics
- Page overlaying and erasing for a "windowing" effect
- Standard or user definable character sets available
- Text and graphics animation
- Sophisticated answer judging
- Strings within strings can be recognized
- Student record keeping
- Graphic overlay supported
- Fading feature can fade video, text, graphics or audio

Prices:
$4,000.00 First year license
$875.00 Per year

Master Class Corporation
Cast Authoring System

- Runs on the IBM-PC and compatible computers and any UNIX-based hardware
- Command-based system
- Student record keeping and student management features
- Up to 127 windows available per screen
- Complex arithmetic computations supported

Price: $1,295.00 for IBM-PC

Online Computer Systems, Inc.
Pilot Plus Authoring Language

- Pilot Plus is supported on CP/M 2.2 Z80 based systems and IBM-PC or computers that use 8088 or 8086 processors
- Command-based system
- Complex answer judging
- Supports digital sound technologies
- Graphic overlay supported
- Full screen editor for creating or modifying materials
- Online testing and record keeping capabilities
- User defined character sets available

Price: $1,000.00

Optical Data Corporation
Laser Write Authoring Program

- Runs on the Apple II and IIe computers
- Capable of highly structured branching routines
- Mix and match captions, true/false questions and multiple choice items with or without the laserdisc player online
- No programming experience necessary
- Programs can be edited with the Laser Write editor or Apple Works word processing program

Price: $80.00

Regency Systems, Inc.
Training & Education Language (TEL)

- Command-driven
- Menu-driven utility included
- Runs on IBM-PC computers, 320K RAM
- Graphics Editor generates TEL code
- Student record keeping
- User-defined character editor
- Fill-in-the-blank, true/false, yes/no judging
- Package includes Source Editor, Group Editor, Dotset Editor, Print Table Editor, File Manager, On-line learning aid

Price: $3,950.00

Sony CDS/Genesis—Authoring System

- Runs on the IBM InfoWindow, Sony View, NCR InteracTV-2, and the Visage 1500 videodisc systems
- Menu-driven system
- Supports multi-level authoring
- Supports lesson structure design

- Screen-oriented editor
- Flow charts of lessons can be printed
- Student data gathering
- Supports light pen, mouse and touch screen

Price: $

Spectrum Training Corporation
The Educator Authoring System

- Runs on the IBM-PC, XT, AT and compatible computers
- Menu-driven options
- True/false, multiple choice, fill-in-the-blank, or yes/no judging available
- Frame Capture Utility included
- Full-screen word processing and graphics
- Total control of color
- Advanced graphics capabilities
- User-defined font capabilities
- Supports windowing
- Group or individual record keeping
- Supports graphics overlay

Price: $3,500.00 per year per author

Thomas Communications
Force Ten Authoring System

- Runs on the IBM-PC, XT, AT or compatible computers
- Supports Sony LDP-1000, LDP-2000, Pioneer LD-V6000, or Philips VP-835E videodisc players
- Menu-driven system
- Multiple choice, fill-in-the-blank, keyword search/free form response, list match, yes/no, or true/false answer judging
- Supports graphics overlay
- Windowing and animation supported
- User-defined fonts
- Screen capture feature
- Advanced graphics features included
- Group or individual record keeping

Price: $5,000.00

Darbick Instructional Software Systems
VCIS—Video-Computer Courseware Implementation System

- No programming required
- Create and edit text and graphics
- Build and revise courseware
- User options always displayed
- Analysis of student response data available
- Complex branching routines available
- Fully transportable on the following systems:
  IBM-PC (MS-DOS V.2)
  Zenith Z-100 (MS-DOS V.2)
- Courseware can be developed for one-third the normal cost
- Supports graphic overlay

Prices:
$600.00 for Educational Institution site license
  $2,000.00 for Full support
$1,250.00 for Small organizations 2 computer license
  $3,000.00 for Full support
$2,500.00 for Large organizations site license
  $6,000.00 for Full support

Videodiscovery
VIDKIT Authoring System

- Runs on the IBM-PC OR IBM-PCjr computers
- Menu-driven system
- Graphics editor
- Student record keeping available
- True/false, multiple choice, and short answer input judging
- Student record keeping
- Supports touch screen, mouse, and light pen inputs
- Capable of printing lesson flow chart

Price: $150.00

Video Nova
Video Nova Authoring System

- Runs on the Sony SMC-70, View and IBM-PC computers
- Menu-driven system
- Supports Graphic overlay
- Supports light pen, joy stick, and touch screen
- Graphics editor
- Answer judging includes matching text input
- Student record keeping available

Prices:
$1,995.00 for Base system
$995.00 for Course Supervisor & Student Record Keeper
$149.00 for Type Font & Titling Package
$395.00 for Deluxe Testing Format Package

Washington Computer Service
Pilot Authoring Language

- Runs on the Apple Macintosh and IBM-PC computers
- Command-based language
- Multiple text windows
- User-defined character fonts
- Extensive graphics support
- Student record keeping
- Screen capture
- Full computational features
- Arrays, strings, functions, pattern matching, judging

Prices:
$200.00 for PC/PILOT
$350.00 for MacPILOT

Whitney Educational Services
A 128-A—Insight 2000 Plus Authoring Language

- Runs on the Apple computer
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false, or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

Price: $990.00

Whitney Educational Services
PC-227A—Insight-PC Plus Authoring Language

- Runs on the IBM-PC and compatible computers
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false, or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

Price: $990.00

Whitney Educational Services
SM 327—Insight 70 Authoring Language

- Runs on the Sony SMC-70 computer
- Supports the SMC-70 superimpose functions
- 35 levels of branching
- 10 levels of unit nesting
- Options for multiple choice, true or false, or fill in the blank questions with unlimited responses
- Student control can be available at any time
- Student response storage file
- Built in diagnostic features

Price: $895.00

APPENDIX I. SERVICE INFORMATION

In Service, Inc.
765 Route 83, Suite 114
Bensenville, IL 60106
(312)860-9822

In Service, Inc. has been designated as a preferred service company by Pioneer. Videodisc players have a five-day turnaround from the date received by In Service, Inc., with flat labor rates on all models. Extended warranties are available. Call for quotes.

Warrantech Corporation
126 East 56th Street
New York, NY 10022
(212)319-8383

Approximate Costs for Selected Videodisc Related Items

Item		Carry In	In Home
Laserdisc Player	1 yr	$ 59.99	
	2 yrs	$ 99.99	
	3 yrs	$139.99	
TV Monitors	1 yr	$ 39.99	$ 59.99
(less than 19")	2 yrs	$ 69.99	$109.99
	3 yrs	$ 99.99	$139.99
TV Monitors	1 yr		$ 59.99
(19" or larger)	2 yrs		$109.99
	3 yrs		$159.99
TV Projector	1 yr		$109.99
	2 yrs		$219.99
Microcomputer Items	per/yr	$100.00*	$150.00**
Audio System	1 yr		$ 59.99
(Up to 5 components)	2 yrs	$ 99.99	
	3 yrs		$139.99

* or 14% of retail price, whichever is greater
** or 17% of retail price, whichever is greater

APPENDIX J. VIDEODISC BIBLIOGRAPHY

This bibliography is a collection of books, periodicals, conference proceedings, and special publications pertaining to the subject of videodiscs. Although very few books have been written about videodiscs, those on the market range from historical accounts of the technology to production guides for interactive programming. The bulk of the information concerning the applications of the technology, and the specific problems encountered in daily use is contained in the periodicals. The periodicals listed here are either fully devoted to videodisc technology or have frequent articles that are helpful in understanding the different aspects of videodisc use. Several fields offer publications that discuss the videodisc technology: professional television, educational media, computer assisted instruction, and optical disc technology. As each of these areas have different readers, it is often interesting how many different perspectives from which the technology can be viewed.

Videodisc Books

Bennion, Junious L. and Edward W. Schneider. Videodiscs. Educational Technology Publications, Englewood Cliffs, New Jersey, 07632. 1981.

Daynes, Rod, and Beverly Butler. The Videodisc Book. John Wiley & Sons, Inc., P.O. Box 063, Somerset, New Jersey 08873. 1984. $89.95

DeBloois, Michael L. Effectiveness of Interactive Videodisc Training, Learning Link Corporation, 2880 South Main Street, Suite 111, Salt Lake City, Utah 84115. 1985. $25.00.

DeBloois, Michael L. Videodisc/Microcomputer Courseware Design. Educational Technology Publications, Inc., Englewood Cliffs, New Jersey 07632. 1982.

Floyd, Steve and Beth Floyd. Handbook of Interactive Video. Knowledge Industry Publications, 701 Westchester Avenue, White Plains, New York 10604. 1983. $34.95.

Gayeski, Diane M. Corporate & Instructional Video Design & Production. Prentice-Hall, Englewood Cliffs, NJ 07632. 1983. $21.95

Gayeski, Diane M. and David Williams. Interactive Media. Prentice-Hall, Englewood Cliffs, NJ 07632. 1985.

Iuppa, Nicholas V. A Practical Guide to Interactive Video Design. Knowledge Industry Publications, Inc., 701 Westchester Ave., White Plains, NY 10604. 1984. $34.95.

Kindelberger, Charles. Interactive Video—1984. Applied Video Technology, Inc., 5118 Westminster Place, St. Louis, Missouri 63108. Phone (314) 569-9144. $31.50 or $45.50 with supplement.

Lambert, Steve and Jane Sallis. CD-I and Interactive Videodisc Technology. Howard W. Sams & Co., 4300 West 62nd Street, Indianapolis, Indiana 46268. $24.95.

Sigel-Schubin-Merrill. Video Discs. Van Nostrand Reinhold Company, 135 W. 50th St. New York, NY 10020. 1980.

PERIODICALS

Disc Topics, Pioneer Video, Inc., Industrial Sales Division, 5150 E. Pacific Coast Highway, Suite 300, Long Beach, California 90804. Phone (213) 498-0300. Quarterly. Free.

Educational Technology, Educational Technology Publications, 140 Sylvan Avenue, Englewood Cliffs, NJ 07632. Phone (201) 871-4007. Monthly. $49.00/year.

E-ITV, C.S. Tepfer Publishing Company, Inc., 51 Sugar Hollow Road, Danbury, CT 06810. Phone (203) 743-2120. Monthly. $15.00/year, $2.00/single copy.

Interactive Discs Today, 2315 Broadway, New York, NY 10024. Phone (212) 873-5900. Biweekly. $225.00/year.

Interactive Video Technology, 223 Sunrise Drive, Shreve, OH 44676. Phone (216) 567-3732. Monthly. $45.00/year.

IICS Reporter, International Interactive Communications Society, 2120 Steiner Street, San Francisco, CA 94115. Phone (415) 922- 0214. Monthly. Membership $50.00/year.

International Television, Fulfillment Dept., P.O. Box 1229, Murry Hill Station, New York, NY 10016. Phone (212) 725-5742. Six issues per year. $13/year, $2.50/single copy.

Journal of Educational Technology Systems, Society for Applied Learning Technology, 50 Culpeper Street, Warrenton, VA 22186, Phone (703) 347-0055. Membership $25.00/year, Journal $31.00/year.

The Laser Disc Newsletter, Suite 428, 444 Hudson Street, New York, N.Y. 10014. Phone (212) 242-3324. Monthly. $15.00/year, $2.00/single copy.

Medical Disc Reporter, 5219 Acacia Avenue, Bethesda, Maryland 20814. Bi-Monthly newsletter. $45.00/year.

Optical Information Systems, Meckler Publishing, 520 Riverside Avenue, Westport, CT 06880. Phone (800) 243-4223. Quarterly. $75/year.

Optical Information Systems Update, Meckler Publishing, 520 Riverside Avenue, Westport, CT 06880. Phone (800) 243-4223. Monthly. $96/year,

$66/year with subscription to Videodisc and Optical Disk.

Optical Memory Newsletter, E. S. Rothchild Publisher, P.O. Box 14807, San Francisco, CA 94114-0817. Phone (415) 621-6620. Bi-Monthly. $295/year.

Video Computing, P.O. Box 3415, Indialantic, FL 32903. Phone (305) 768-2778. Monthly. $130.00/year.

Videodisc Design/Production Group News, KUON-TV/University of Nebraska-Lincoln, P.O. Box 83111, Lincoln, NE 68501-3111. Phone (402) 472-3611. Bi-Monthly. Free.

The Videodisc Monitor, Future Systems, P.O. Box 26 Falls Church, VA 22046. Phone (703) 241-1799. Monthly. $197/year $10/single copy.

Video Systems, Intertec Publishing Corp., 9221 Quivira Road, P.O. Box 12901, Overland Park, KS. 66212-9981. Phone (913) 888-4664. Monthly. $25.00/year, $3.00/single copy, free to video/audio professionals with purchasing authority.

CONFERENCE PROCEEDINGS

The following proceedings are available from the Society for Applied Learning Technology, 50 Culpeper Street, Warrenton, VA 22186. Phone (703) 347-0055.

Interactive Videodisc in Education and Training (1983). $35.00.

Microcomputers in Education and Training (1983). $40.00.

Educational Technology to Improve International Education and Training (1982). $30.00.

Public, Vocational and Industrial Education and Training (1982) $35.00.

Videodisc, Microcomputer and System Technologies in Education and Training (1982). $40.00.

Learning Technology for the 80's, (1981). $35.00.

Videodisc, microcomputer and Learning System Technologies in Public, Vocational, Medical, and Handicapped Education and Training (1980). $40.00.

SPECIAL VIDEODISC PUBLICATIONS

Journal for Performance and Instruction, Volume 22, Number 9 November 1983. National Society for Performance and Instruction, 1126 16th Street, N.W., Suite 315, Washington, D.C. 20036. $5.00.

Laser Library Resource Guide, Nashua Public Library, 2 Court Street, Nashua, NH 03060. (603) 883-4141. $5.00.

Medical Disc Reporter Project Directory, 5219 Acacia Avenue, Bethesda, Maryland 20814. Directory $65.00, quarterly updates $25.00.

CONFERENCE AND WORKSHOP INDEX

The following is a list of organizations that hold regular workshops or conferences in the field of interactive videodisc. Many of these organizations have sessions that are specifically geared toward education and training, as well as technical sessions geared more for industrial applications of the technology and interactive video production techniques. Readers should contact each organization before attending to be sure that the workshop or convention will be appropriate to meet their specific needs.

Association for the Development of Computer-Based Instructional Systems (ADCIS)
Miller Hall 409
Western Washington University
Bellingham, WA 98225
(206) 676-2860

Association for Educational Communications and Technology (AECT)
1126 16th Street, N.W.
Washington, D.C. 20036
(202) 466-4780

Columbia University
Office of Continuing Education
Box 132
Teachers College
New York, NY 10027
(212) 678-3147

Institute for Graphic Communication
375 Commonwealth Avenue
Boston, MA 02115
(617) 267-9425

International Interactive Communications Society (IICS)
2120 Steiner Street
San Francisco, CA 94115
(415) 922-0214

Ithaca College
Office of Summer Sessions
Muller 210
Ithaca, NY 14850
(607) 274-3525

Knowledge Industry Publications, Inc.
701 Westchester Avenue
White Plains, NY 10604
(800)431-1880

Meckler Publishing
11 Ferry Lane West
Westport, CT 06880
(203) 226-6967

Nebraska Videodisc Design/Production Group
KUON-TV/University of Nebraska-Lincoln
P.O. Box 83111
Lincoln, NE 68501-3111
(402) 472-3611

The Parke Institute
120 Central Park Plaza
2880 South Main Street
Salt Lake City, Utah 84115
(800) 221-0254
(801) 486-2348 in Utah

Society for Applied Learning Technology
50 Culpeper Street
Warrenton, VA 22186
(703)347-0055

Society of Photo-Optical Instrumentation Engineers (SPIE)
P.O. Box 10
Bellingham, WA 98227-0010
(206) 676-3290

Technology Opportunity Conference
P.O. Box 14817
San Francisco, CA 94114-0817
(415) 626-1133

Visual Communications Congress
475 Park Avenue South
New York, NY 10016
(800) 525-9710

MANUFACTURERS INDEX

ACCESS Alberta
Instructional Technology Unit
16930-114 Avenue
Edmonton, Alberta, Canada
T5M 3S2
(403) 451-3160

Actronics Inc.
810 River Avenue
Pittsburgh, PA 15212
(412) 231-6200

Aimtech Corporation
77 Northeastern Boulevard
Nashua, NH 03062
(603) 883-0220

The ALIVE Center
P.O. Box 73
Fairlawn, OH 44309
(800) AT-ALIVE
(216) 374-1620 in Ohio

Allen Communications
140 Lakeside Plaza II
5225 Wiley Post Way
Salt Lake City, Utah 84116
(801) 537-7800

American Association of Physics Teachers
5110 Roanoke Place, Suite 101
College Park, MD 20740

American Technology Resources
Rose Tree Professional Center
1245 N. Providence Road
Media, Pennsylvania 19342
(215) 565-6434

APh Technological Consultants
55 North St. John Avenue
Pasadena, CA 91103
(818) 796-0331

Applied Data Research, Inc.
Route 206 and Orchard Road, CN-8
Princeton, NJ 08540
(201) 874-9000

Architecture Machine Group
Room 9-516
Massachusetts Institute of Technology
105 Massachusetts Avenue
Cambridge, MA 02139
(617) 253-5981

BCD Associates, Inc.
5809 S.W. 5th Street, Suite 101
Oklahoma City, OK 73128
(405) 948-1293

BNA Communications Inc.
9417 Decoverly Hall Road
Rockville, Maryland 20850
(301) 948-0540

Borg-Warner Educational Systems
600 West University Drive
Arlington Heights, Illinois 60004
(800) 323-7577, in Illinois (800) 942-6995

Carroll Touch Technology
2902 Farber Drive
Champaign, Illinois 61821
(217) 351-1700

CEL Educational Resources
515 Madison Avenue
New York, NY 10022
(800) 235-3339
(212) 421-4030

Celebrations Video
111 South Church
Tucson, AZ 85705
(602) 623-1400

Center for Computer-Assisted Legal Instruction
229 Nineteenth Avenue South
Minneapolis, MN 55455
(612) 373-5352

Central Scientific Company
11222 Melrose Avenue
Franklin Park, Illinois 60131-1364

Computer Teaching Corporation
1713 S. Neil
Champaign, IL 61820
(217) 352-6363

Computer Technology Associates
New Product Division
1704 Moon, N.E., Suite 14
Albuquerque, New Mexico 87112
(505) 298-0942

Comsell, Inc.
500 Tech Parkway
Atlanta, GA 30313
(404)872-2500

Comware Incorporated
4430 Carver Woods Drive
Cincinnati, OH 45242
(513) 791-4224

Control Data Corporation
8100 34th Avenue South
Bloomington, MN 55420
(612) 853-5022

Ken Cranes Video Disc
4900 W. 147th Street
Hawthorne, CA 90250
(800) 624-3078
(800) 624-1768 in California

Crawford Communications
535 Plasamour Drive
Atlanta, GA 30324
(800) 831-8027
(404) 876-7149

Darbick Instructional Software Systems
P.O. Box 81157
Salt Lake City, Utah 84108
(801) 582-2377

Datamed
5202 Valmar
Concord, CA 94521
(415) 798-6736

Data Processing Resources
P.O. Box 47944
Tulsa, OK 74147
(918) 492-8873

Deltak (Subsidiary of National
Education Training Corporation)
1751 Diehl Road
Naperville, IL 60566
(312) 369-3000

Digital Equipment Corporation
Educational Services
12 Crosby Drive
Bedford, MA 01730
(617)276-4111

Digital Videodisc Technologies, Inc.
1704 Moon N.E.
Albuquerque, NM 87112
(505) 292-1212

DISCOVER Center
230 Schilling Circle
Schilling Plaza South
Hunt Valley, MD 21031
(301) 628-8000

Ear Three Systems Manufacturing Company
P.O. Box 9424
Arlington, VA 22209
(703) 525-8770

ECCO Incorporated
1601 E. Chestnut Avenue
P.O. Box 659
Santa Ana, CA 92702-0659
(714) 835-6000

Edudisc
3501 Amanda
Nashville, TN 37215
(615) 269-9508

Electro Mechanical Systems, Inc.
801 West Bradley Avenue
Champaign, IL 61820
(217) 359-7125

Electrohome (U.S.A.) Limited
250 Wales Avenue
Tonawanda, NY 14150
(716) 694-3332

Electronic Systems Products, Inc.
One Tico Road
Titusville, FL 32780
(305) 269-6680

Elographics, Inc.
105 Randolph Road
Oak Ridge, TN 37830
(615) 482-4100

FTG Data Systems
P.O. Box 615
Stanton, CA 90680
(714) 995-3900

General Electric Company
Projection Display Products Operation
Electronics Park 6-206
P.O. Box 4840
Syracuse, NY 13221
(315) 456-2152 (315) 456-2153

Global Information Systems Technology, Inc.
201 West Springfield, Suite 700
Champaign, IL 61820
(217) 352-1165

GPN
Box 80669
Lincoln, Nebraska 68501-0669
(800) 228-4630 (402) 472-2007

Grolier Electronic Publishing, Inc.
Sherman Turnpike
Danbury, Connecticut, 06816
(800) 858-8858

Hazeltine Corporation
10800 Parkridge Blvd.
Reston, VA 22091
(703) 620-6800

Health EduTech, Inc.
7801 East Bush Lake Road/Suite 350
Minneapolis, MN 55435
(612) 831-0445

Hitachi Sales Corporation of America (Disc Players)
1290 Wall Street
West Lyndhurst, NJ 07071
(201) 935-5300

Hitachi Sales Corporation of America (Televisions)
401 West Artesia Blvd.
Compton, CA 90220
(213) 537-8383

Industrial Training Corporation
14616 Southlawn Lane
P.O. Box 6009
Rockville, MD 20850
(800) 638-3757
(301) 279-2527 (in Maryland)

IEV Corporation
3030 South Main St., Suite 300
Salt Lake City, Utah 84115
(800) IEV-6161
(801) 466-9093

IMEDIA International, Inc.
1333 F Street N.W., Suite 330
Washington, DC 20004
(202) 639-8505

Inflight Services, Inc.
485 Madison Avenue
New York, NY 10022
(212) 751-1800
(800) 221-1297

Info-Disc Corporation
4 Professional Drive
Gaithersburg, MD 20879
(301) 948-2300

In Service, Inc.
765 Route 83, Suite 114
Bensenville, IL 60106
(312) 860-9822

NCR Corporation
101 West Schantz Avenue
Dayton, OH 45479
(800) CALL-NCR
(513) 445-3770

National Geographic Society
Educational Services
Department 86
Washington, D.C. 20036
(800) 368-2728
(301) 921-1330 Maryland, Alaska, Hawaii

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4650

NEC Home Electronics (U.S.A.) Inc.
1401 Estes Avenue
Elk Grove Village, IL 60007
(312) 228-5900

New England Technology Group
400 West Cummings Park
Woburn, MA 01801
(617) 938-8833

New Media Graphics
279 Cambridge Street
Burlington, MA 01803
(617) 272-8844

North American Philips Corporation
100 East 42nd Street
New York, N.Y. 10017
(212) 697-3600

Online Computer Systems, Inc.
20251 Century Blvd.
Germantown, MD 20874
(800) 922-9204

Optical Data Corporation
66 Hanover Road
Florham Park, NJ 07932
(800) 524-2481

Personal Computer Supply
157 S. Kalamazoo Mall
Kalamazoo, MI 49007
(800) 421-4157
(616) 345-8681 (in Michigan)

Picture Management Systems
1071 Wisconsin Avenue, N.W.
Washington, D.C. 20007
(202) 338-6390

Pioneer Video
200 West Grand Avenue
Montvale, New Jersey 07645
(201) 573-1122

Poseidon Systems, Inc.
5500 Central Avenue
Boulder, CO 80301
(303) 449-4999

Regency Systems, Inc.
3200 Farber Drive
P.O. Box 3578
Champaign, IL 61821
(217) 398-8067

Joan Rubin Associates
1640 San Pablo Avenue, Suite C
Berkeley, CA 94702
(415) 527-7037

Scott Instruments
1111 Willow Springs Drive
Denton, Texas 76201
(817) 387-9514

Simon Fraser University
Videodisc Project Director
Faculty of Education, Office of the Dean
Burnaby, B.C. V5A 1S6 Canada

Smithsonian Institution
National Air and Space Museum
Records Management Division
Washington, D.C. 20560
(202) 357-3133 or 3391

Society for Visual Education, Inc.
1345 Diversey Parkway
Chicago, IL 60614
(800) 621-1900
(312) 525-1500 (in Illinois call collect)

Sony Corporation of America
Sony Drive Park
Ridge, NJ 07656
(201) 930-1000

Spectrum Training Corporation
50 Salem Street
Lynnfield, MA 01940
(617) 245-8500

The Instant Replay
479 Winter Street
Waltham, MA 02154-1216
(800) VHS-DISC (US), (800) VHS-BETA (MA),
(617) 890-5384
(800) THE-INST (Canada)

Intelligent Images, Inc.
5510 Morehouse Drive, Suite 210
San Diego, CA 92121
(619) 457-5505

Interactive Image Technologies Ltd.
49 Bathurst Street, Suite 401
Toronto, Ontario
Canada M5V 2P2
(416) 361-0333

Interactive Media Corporation
65 West 55th Street, Suite 4B
New York, N.Y. 10019
(212) 245-8409

Interactive Training Systems
4 Cambridge Center
Cambridge, MA 02142
(800) 227-1127
(617) 497-6100 (MA)

Interactive Video Systems, Inc.
5001 West 80th Street
Minneapolis, MN 55437
(800) 328-9341
(612) 893-9661 (in Minnesota)

International Business Machines Corp.
Department 7EV
4111 Northside Parkway, N.W.
Atlanta, GA 30327
(404) 364-3000

J.A.M., Inc.
42 East Avenue
Rochester, NY 14604
(716) 232-5500

Laserdata
One Kendall Square
Building 200
Cambridge, Massachusetts 02139
(617) 494-4900

LDC America (Laser Disc Corporation of America)
200 West Grand Avenue
Montvale, New Jersey 07645
(201) 573-1122

Laser World
533 2nd Street
San Francisco, CA 94107
(800) 637-7888
(415) 957-1163 (CA)

Learncom
215 First Street
Cambridge, MA 02142
(617) 576-3100

Library of Congress
American Folklife Center
Washington, D.C.
(202) 287-6590

Maryland Center for Public Broadcasting
Owings Mill, Maryland 21117
(301) 356-5600

Master Class Corporation
1721 Black River Road
Rome, NY 13440
(315) 337-1000

McDonnell Douglas, Electronics Company
P.O. Box 426
St. Charles, MO 63302
(800) 345-6632
(314) 925-4972

Meeting Services, Inc.
24 Depot Square
Tuckahoe, NY 10707
(914) 961-1900

MicroTouch Systems, Inc.
Ten State Street
Woburn, MA 01801
(617) 935-0080

MindBank, Inc.
115 Evergreen Heights Drive
Pittsburgh, PA 15229
(412)931-7500

Minnesota Educational Computing Consortium
(MECC)
3490 Lexington Avenue North
St. Paul, MN 55112
(612) 481-3500

Mitsubishi Electric Sales America, Inc.
3010 East Victoria Street
Rancho Dominguez, CA 90221

Starship Industries
605 Utterback Store Road
Great Falls, VA 22066
(703) 430-8692, (703) 450-5780

Superior Training Systems
114 State Street
Boston, MA 02109
(617) 523-4040

Symtec Incorporated
15933 West 8 Mile
Detroit, MI 48235
(313) 272-2950

Synergistic Educational Technology Systems, Inc. (SETS)
4405 Vineland Road, Suite 4C
Orlando, FL 32811
(305) 422-7444

Synetix Inc.
10635 NE 38th Place
Kirkland, WA 98033
(800) 426-7412 (206) 828-4884

Systems Impact, Inc.
2084 North 1200 East
Logan, Utah 84321
(801) 753-7973
(800) 822-INFO

TCT Technical Training, Inc. (T-Cubed)
599 N. Mathilda Avenue
Sunnyvale, CA 94086
(408) 735-9990

Technovision, Inc.
1087 Meyerside Drive, Unit 14
Mississauga, Ontario
Canada, L5T 1M5
(416) 671-8788

3rd Wave Media Consultants
1600 Notre Dame, Suite 206
Montreal, Quebec
Canada, H3J 1M1
(514) 932-9885

Thomas Communications (US)
c/o Stockman & Associates Inc.
164 Mason Street
Greenwich, CT 06830
(203) 661-3338

Thomas Communications (Canada)
120 Rosedale Valley Road, Suite 611
Toronto, Ontario, Canada M4W 1P8
(416) 929-5344

Touch Technology, Inc.
107 Gibraltar Street
Annapolis, MD 21401
(301) 269-6181

UCLA Instructional Media Library
10962 Le Conte Ave.
Los Angeles, CA 90024
(213) 825-7771

University of Delaware
Videodisc Music Series
Office of Instructional Technology
Newark, DE 19716
(302) 451-8161

University of Washington
Educational Assessment Center
1400 N.E. Campus Parkway Room 453
Seattle, Washington 98105
(206) 543-1170

University of Wisconsin
Helen L. Allen Textile Collection
1300 Linden Drive
Madison, WI 53706
(608) 262-1162

U.S. Video
1230 Douglas Avenue
Longwood, FL 32779
(305) 682-5333

U.S. Video Source
219 Glenridge Avenue
Montclair, NJ 07042
(800) USA-DISC
(201) 783-7650

Video Associates Labs
3933 Steck Avenue, B-106
Austin, TX 78759
(512) 346-5781

Videodiscovery, Inc.
P.O. Box 85878
Seattle, WA 98145-1878
(206) 524-4007

Video Dynamics, Inc.
Colony Square Shopping Center
2318 S. Elmhurst Road
Mount Prospect, IL 60056
(312) 593-2304

Video Nova
400 Renaissance Center, Suite 500
Detroit, MI 48243
(313) 861-6034

Voyager Press
2139 Manning Avenue
Los Angeles, CA 90025
(800) 446-2001
(800) 443-2001 In CA
(213) 474-0032

VT Productions
P.O. Box 339
Soquel, CA 95073
(408) 476-5858

Visage, Inc.
12 Michigan Drive
Natick, MA 01760
(617) 655-1503

Visual Database Systems
614 Been Creek Road
Scotts Valley, CA 95066-3314
(408) 438-8396

Warp Speed Computer Products, Inc.
5555 South Inglewood Blvd.
Los Angeles, CA 90230
(213) 822-0647
(800) 874-4315 US
(800) 826-1563 CA

Warrantech Corporation
126 East 56th Street
New York, NY 10022
(212) 319-8383

Washington Computer Services
3028 Silvern Lane
Bellingham, WA 98226
(206) 734-8248

Whitney Educational Services
1777 Borel Place
San Mateo, CA 94402
(415) 340-5818

WICAT Education Institute
931 East 300 North
Provo, UT 84601
(801) 377-4922

WICAT Systems
Training Systems Division
P.O. Box 539
1875 South State
Orem, UT 84057
(801) 224-6400 ext.209

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